42	42-compatible operations					
g-shift	42KEYG	42KEYX	42VRMNU	42PRA	42ATOX	42XTOA
f-shift	42ALENG	42POSA	42AROT	42ASHF	42PRMPT	42AIP
unshifted	42α	42⊢	42ARCL	42ASTO	42AVIEW	42CLA
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0026_C47_R47_DL_42S_Compatibility.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	42	MENU (42)	42-compatible operations	Functions and commands that are 100% compatible with the HP-42S/DM42(n) calculators ; Ref : https://47calc.com/doc/Application%20Notes/AN0026_C47_R47_DL_42S_Compatibility.pdf	*Compatibility*		42	
F1	42α	Command (42, PEM)	Enter string into Alpha register	Enter text string into Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command ; TAM : 42α '… TamAlpha menu (maximum 15 characters)	*Compatibility*		42α	
F2	42⊢	Command (42, PEM)	Append string to Alpha register	Append text string to Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command ; TAM : 42⊢ '… TamAlpha menu (maximum 14 characters) ; Info : for the 42-compatible alpha functions and commands, the Alpha register (default K) is limited to 44 characters ; Error 64 -- No string in alpha register -- may be raised	*Compatibility*		42⊢	
F3	42ARCL	Command (42)	Recall to Alpha register	Append contents of register or variable (formatted according to the display settings) to Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command ; TAM : 42ARCL __ Tam menu ; for the 42-compatible alpha functions and commands, the Alpha register (default K) is limited to 44 characters ; Error 64 -- No string in alpha register -- may be raised	*Compatibility*		42ARCL	
F4	42ASTO	Command (42)	Store from Alpha register	Store first six characters of text string in Alpha register (default K) in register or variable ; this is a HP-42S/DM42(n) calculator compatible command ; TAM : 42ASTO __ Tam menu ; Error 64 -- No string in alpha register -- may be raised	*Compatibility*		42ASTO	
F5	42AVIEW	Command (42, PEM)	View Alpha register	View the Alpha register (default K) contents (text string) in the top left part of the screen, without TI (for use in Program Entry Mode) ; if the contents include the ↲ symbol, optionally display one or more TI's at the top, X, Y, Z line ; example: "top line = ↲ X = ↲ Y = ↲ Z = " ; this is a HP-42S/DM42(n) calculator compatible command ; Info : If 🖶ACT is SET, 42AVIEW will print when executed from the keyboard in MAN, NORM or TRACE ; in Program Entry Mode, 🖶EN must be SET as well ; If 🖶ACT is CLEAR and 🖶EN is SET, 42AVIEW halts execution (R/S)	*Compatibility*		42AVIEW	
F6	42CLA	Command (42)	Clear Alpha register	Clear Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command	*Compatibility*		42CLA	
fF1	42ALENG	Command (42)	Alpha register length	Get length of text string in Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command	*Compatibility*		42ALENG	
fF2	42POSA	Command (42)	Alpha register position	Get position (starting from 0) of substring, character or character code in X within text string in Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command ; Info : For substring not found or empty text string, 42POSA returns -1	*Compatibility*		42POSA	
fF3	42AROT	Command (42)	Rotate Alpha register	Rotate Alpha register by the number of characters specified in X (positive : shift left, negative : shift right) ; this is a HP-42S/DM42(n) calculator compatible command ; Info : For empty text string, 42AROT acts as NOP ; Error 64 -- No string in alpha register -- may be raised	*Compatibility*		42AROT	
fF4	42ASHF	Command (42)	Shift Alpha register	Shift the six leftmost characters out of the Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command ; Info : For empty text string, 42ASHF acts as NOP ; Error 64 -- No string in alpha register -- may be raised	*Compatibility*		42ASHF	
fF5	42PRMPT	Command (42, PEM)	Prompt (42)	Halt program execution and view the register or variable contents (text string) in the top left part of the screen, without TI (for use in Program Entry Mode) ; if the contents include the ↲ symbol, optionally display one or more TI's at the top, X, Y, Z line ; example: "top line = ↲ X = ↲ Y = ↲ Z = " (uses Alpha register (default K)) ; Info : if 🖶EN is SET, 42PRMPT will print when executed from the keyboard in NORM or TRACE ; in Program Entry Mode, 🖶EN must be SET as well	*Compatibility*		42PRMPT	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
f F6	42AIP	Command (42)	Alpha register Integer Part	Append integer part of X to text string in Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible command ; Info : If the register or variable does not contain a text string, 42AIP will first convert it to text string ; for the 42-compatible alpha functions and commands, the Alpha register (default K) is limited to 44 characters	*Compatibility*		42AIP	
g F1	42KEYG	Command (42, PEM)	Key Go to (42)	Used in Program Entry Mode to specify the label to go to when soft button (1-18) of the Programmable MENU, [↑] (19), [↓] (20) or [EXIT] (21) is pressed ; if button 1-18 is specified, 42KEYG also creates a soft button in the Programmable MENU with the string in the Alpha register (default K) as a label ; TAM : 42KEYG → 42KEY __ TamKey menu ; 42KEY nn GTO __ TamLabel menu	*Compatibility*		42KEYG	
g F2	42KEYX	Command (42, PEM)	Key Execute (42)	Used in Program Entry Mode to specify the program to execute when soft button (1-18) of the Programmable MENU, [↑] (19), [↓] (20) or [EXIT] (21) is pressed ; if button 1-18 is specified, 42KEYX also creates a soft button in the Programmable MENU with the string in the Alpha register (default K) as a label ; TAM : 42KEYX → 42KEY __ TamKey menu ; 42KEY nn XEQ __ TamLabel menu	*Compatibility*		42KEYX	
g F3	42VRMNU	Command (42, PEM)	Variable menu (42)	Create variable menu ; uses Alpha register (default K) to store variable name when MVAR-defined button (<var...>) is pressed without NIM input ; TAM : 42VRMNU __ TamLblOnly menu ; Error 25 -- No MVAR found in selected program -- may be raised	*Compatibility*		42VRMNU	
g F4	42PRA	Command (42)	Print Alpha register	Print contents of Alpha register (default K) as text ; this is a HP-42S/DM42(n) calculator compatible command ; Info : If 🖶OFF, 42PRA writes alpha to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Compatibility*		42PRA	
g F5	42ATOX	Function (42, monadic)	Alpha register to X	Convert first alpha character of text string in Alpha register (default K) to character code (hexadecimal) amd remove this character ; this is a HP-42S/DM42(n) calculator compatible function ; Info : For empty text string, 42ATOX returns 0 only	*Compatibility*		42ATOX	
g F6	42XTOA	Function (42, monadic)	X to Alpha register	Append character, character code (converted to character), text string or real matrix (converted to text string) to Alpha register (default K) ; this is a HP-42S/DM42(n) calculator compatible function ; Info : For the 42-compatible alpha functions and commands, the Alpha register (default K) is limited to 44 characters	*Compatibility*		42XTOA	

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42	42-compatible operations					
g-shift						
f-shift						
unshifted	42DIM#	~~42BIT?~~	~~42ROTXY~~			
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0026_C47_R47_DL_42S_Compatibility.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	42	MENU (42)	42-compatible operations	Functions and commands that are 100% compatible with the HP-42S/DM42(n) calculators ; Ref : https://47calc.com/doc/Application%20Notes/AN0026_C47_R47_DL_42S_Compatibility.pdf	*Compatibility*		42	
F1	42DIM#	Function (42, monadic)	Matrix dimension (X)	Get dimensions of matrix in X ; this is a HP-42S/DM42(n) calculator compatible function	*Matrix operations*		42DIM#	
F2	~~42BIT?~~	Command (42, strike)	42BIT?	42BIT?	*Compatibility*			
F3	~~42ROTXY~~	Command (42, strike)	42ROTXY	42ROTXY	*Compatibility*			
F4								
F5								
F6								
f F1								
f F2								
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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ADV	Advanced					
g-shift	∞∑n	SLVQ	SLVC	SLVP		f''
f-shift	i∑n	i∏n	PGMPLT	PGMINT	PGMSLV	PGMDRV
unshifted	∑n	∏n	PLT f	∫f d	SOLVE	f'
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_ALLVARS_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0011_C47_JM_EQN_and_ADV_menu_solver_integrator_updated.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0022_C47_R47_JM_RPN_solve_integration_plot.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ADV	MENU	Advanced	Advanced functions, using RPN user programs ; Ref : https://47calc.com/doc/Application%20Notes/AN0011_C47_JM_EQN_and_ADV_menu_solver_integrator_updated.pdf	*RPN Calculus and plotting*		ADV	
F1	$\sum_n$	Command	Sum (RPN)	Sum using RPN program ; $\sum_n$ (from Z to Y in steps of X) ; interrupt by [EXIT] -- see Formula_SIGMAn.png : https://47calc.com/doc/Images/Formula_SIGMAn.png ; TAM : $\sum_n$ __ TamLblOnly menu ; Info : <from> ENTER <to> ENTER <step> $\sum_n$; displays Loop: n, current result, where n is iteration counter ; shown if flag MONIT is SET ; Ref : https://47calc.com/doc/Application%20Notes/AN0008_C47_JM_Programmed_Sums1.pdf	*RPN Calculus and plotting*	MONIT	$\sum_n$	
F2	$\prod_n$	Command	Real product (RPN)	Real product using RPN program ; $\prod_n$ (from Z to Y in steps of X) ; interrupt by [EXIT] -- see Formula_PIn.png : https://47calc.com/doc/Images/Formula_PIn.png ; TAM : $\prod_n$ __ TamLblOnly menu ; Info : <from> ENTER <to> ENTER <step> $\prod_n$; displays Loop: n, current result, where n is iteration counter ; shown if flag MONIT is SET	*RPN Calculus and plotting*	MONIT	$\prod_n$	
F3	PLTf	MENU (item)	Plot (RPN)	Plot the RPN program (with MVAR variables) selected with TamLblOnly menu ; presents menu for variable selection ; in Program Entry Mode, the RPN program must be specified by PGMPLT and the variable to plot for using the TamVarOnly menu ; TAM : PLTf _ TamLblOnly menu (uses TamVarOnly menu in PEM, to specify variable to plot for) ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*RPN Calculus and plotting*		PLTf	
F4	∫fd	MENU	Integrator (RPN)	Integrator (variables) menu for the RPN program (with MVAR variables) selected with TamLblOnly menu ; enter value and press <var_n> button(s) to set variables, then press button for variable to be used by the integrator in menu Tool∫ ; in Program Entry Mode, the RPN program must be specified by PGMINT and the variable with the Tam menu ; tolerance set by variable ACC ; TAM : ∫fd _ TamLblOnly menu (uses Tam menu in PEM, to specify variable to integrate for)	*RPN Calculus and plotting*		∫fd	
F5	SOLVE	Command (submnu)	Solver (RPN)	Real solver for the RPN program (with MVAR variables) selected with TamLblOnly menu ; presents menu for initial guesses and variable selection ; interrupt by [EXIT] ; tolerance set by SDIGS ; in Program Entry Mode, the RPN program must be specified by PGMSLV and the variable to solve for using the TamVarOnly menu ; SOLVE will skip the next program step if no root is found ; TAM : SOLVE __ TamLblOnly menu (uses TamVarOnly menu in PEM, to specify variable to solve for) ; Info : displays current top and bottom results and iteration counter ; shown if flag MONIT is SET ; Displays : Accuracy ≈ ; <var1..n> =	*RPN Calculus and plotting*	SOLVING	SOLVE	
F6	f'	Command (submnu)	Second derivative (RPN)	Numerically calculate second derivative using RPN program, at value of starred MVAR variable and using step size of δ_d, as specified using the buttons in the (MVAR (delta)) menu presented ; TAM : f' __ TamLblOnly menu ; TI : δ= ; f'≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*RPN Calculus and plotting*		f'	
fF1	i$\sum_n$	Command	Integer sum (RPN)	Integer sum using RPN program ; i$\sum_n$ (from Z to Y in steps of X) ; interrupt by [EXIT] -- see Formula_iSIGMAn.png : https://47calc.com/doc/Images/Formula_iSIGMAn.png ; TAM : i$\sum_n$ __ TamLblOnly menu ; Info : <from> ENTER <to> ENTER <step> i$\sum_n$; displays Loop: n, current result, where n is iteration counter ; shown if flag MONIT is SET	*RPN Calculus and plotting*	MONIT	i$\sum_n$	
fF2	i$\prod_n$	Command	Integer product (RPN)	Integer product using RPN program ; i$\prod_n$ (from Z to Y in steps of X) ; interrupt by [EXIT] -- see Formula_iPIn.png : https://47calc.com/doc/Images/Formula_iPIn.png ; TAM : i$\prod_n$ __ TamLblOnly menu ; Info : <from> ENTER <to> ENTER <step> i$\prod_n$; displays Loop: n, current result, where n is iteration counter ; shown if flag MONIT is SET	*RPN Calculus and plotting*	MONIT	i$\prod_n$	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
fF3	PGMPLT	Command	Specify RPN program for PLTf	In Program Entry Mode, specify the RPN program (with MVAR variables) to be used as the function to be plotted, store values in variable(s), then activate PLTf and specify variable to plot for, X-axis limits set from stack (Y, X) ; TAM : PGMPLT __ TamLblOnly menu ; Info : PGMPLT can nest PGMINT and PGMSLV inside : nesting is limited to 3, respectively 4 levels, on new models and simulator, but plot nesting is disabled on DM42 hardware ; Error 66 -- Nesting too deep -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*RPN Calculus and plotting*		PGMPLT	
fF4	PGMINT	Command	Specify RPN program for ∫fd	In Program Entry Mode, specify the RPN program (with MVAR variables) to be used as the expression, store values in variable(s), then open menu ∫fd and select integrator and variable to be integrated for, integrator limits set from stack (Y, X) ; TAM : PGMINT __ TamLblOnly menu ; Info : PGMINT can nest PGMINT inside : nesting is limited to 3, respectively 4 levels, on new models and simulator, but nesting is limited to 2 levels on DM42 hardware ; Error 66 -- Nesting too deep -- may be raised	*RPN Calculus and plotting*	INTING	PGMINT	
fF5	PGMSLV	Command	Specify RPN program for SOLVE	In Program Entry Mode, specify the RPN program (with MVAR variables) to be used as the expression (= 0), store values in variable(s), then call SOLVE and specify variable to be solved for, solver estimates set from stack (Y, X) ; tolerance set by SDIGS, but the solver converges to graph precision while (nested inside) plotting ; TAM : PGMSLV __ TamLblOnly menu ; Info : PGMSLV can nest PGMINT and PGMSLV inside : nesting is limited to 3, respectively 4 levels, on new models and simulator, but nesting is limited to 2 levels on DM42 hardware ; Error 66 -- Nesting too deep -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*RPN Calculus and plotting*	SOLVING	PGMSLV	
fF6	PGMDRV	Command	Specify RPN program for f', f''	In Program Entry Mode, specify the RPN program (with MVAR variables) to be used as the function to be differentiated, store values in variable(s), then activate f' or f'' and specify variable to differentiate for and step size ; TAM : PGMDRV __ TamLblOnly menu	*RPN Calculus and plotting*		PGMDRV	0
gF1	$\infty\sum_n$	Command	Infinite sum (RPN)	Approximate infinite sum using RPN program ; $\infty\sum_n$ (from Z to Y in steps of X, stopping when Y is reached, or - for Real output - when the last digit of the answer at the SDIGS setting does not change anymore) ; terms must be decreasing ; returns number of iterations in Y ; interrupt by [EXIT] -- see Formula_SIGMAn.png : https://47calc.com/doc/Images/Formula_SIGMAn.png ; TAM : $\infty\sum_n$ __ TamLblOnly menu ; Info : <from> ENTER <to> ENTER <step> $\infty\sum_n$; displays Loop: n, current result, where n is iteration counter ; shown if flag MONIT is SET ; Ref : https://47calc.com/doc/Application%20Notes/AN0008_C47_JM_Programmed_Sums1.pdf	*RPN Calculus and plotting*	MONIT	$\infty\sum_n$	
gF2	SLVQ	Command	Solve quadratic	Solve the quadratic equation : $a \times x^2 + b \times x + c = 0$; parameters taken from 3 coefficients on the stack or from a 1x3 or 3x1 coefficient vector in X ; SLVQ also solves linear equations for 1x2 or 2x1 input and cubic for 1x4 or 4x1 ; tolerance set by SDIGS ; Info : a ENTER b ENTER c SLVQ ; roots 1, 2 in Y, X ; for vector input, roots are returned in a vector ; zyx→$\bar{v}_3$ is available on menu [$\bar{v}$←→$\bar{v}$.1] F3 to create a 1x3 coefficient vector (also yx→$\bar{v}_2$, tzyx→$\bar{v}_4$)	*RPN Calculus and plotting*		SLVQ	
gF3	SLVC	Command	Solve cubic	Solve the cubic equation : $a_3 \times x^3 + a_2 \times x^2 + a_1 \times x + a_0 = 0$; parameters taken from 4 coefficients on the stack or from a 1x4 or 4x1 coefficient vector in X ; SLVC also solves linear equations for 1x2 or 2x1 input and quadratic for 1x3 or 3x1 ; tolerance set by SDIGS ; Info : a_3 ENTER a_2 ENTER a_1 ENTER a_0 SLVC ; roots 1, 2, 3 in Z, Y, X ; for vector input, roots are returned in a vector ; tzyx→$\bar{v}_4$ is available on menu [$\bar{v}$←→$\bar{v}$.1] F5 to create a 1x4 coefficient vector (also yx→$\bar{v}_2$, zyx→$\bar{v}_3$)	*RPN Calculus and plotting*		SLVC	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF4	SLVP	Command	Solve polynomial	Solve the polynomial equation : $a_n \times x^n + a_{n-1} \times x^{n-1} + \ldots + a_0 = 0$, $n \leq 11$; parameters taken from a 1 x n+1 or n+1 x 1 coefficient vector in X ; tolerance set by SDIGS ; Ref : https://47calc.com/doc/Application%20Notes/AN0033_C47_R47_DE_Polynomial_roots.pdf	*RPN Calculus and plotting*		SLVP	
gF5								
gF6	f"	Command (submnu)	First derivative (RPN)	Numerically calculate first derivative using RPN program, at value of starred MVAR variable and using step size of δ_d, as specified using the buttons in the (MVAR (delta)) menu presented ; TAM : f" __ TamLblOnly menu ; TI : δ= ; f"≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*RPN Calculus and plotting*		f"	

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p1	ADV	Link
F1	$\sum_n$	
F2	$\prod_n$	
F3	PLT f	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLTf_page_1.pdf
F4	∫f d	https://47calc.com/doc/R47/Menus/R47v0_Menu_Integral-fd_page_1.pdf
F5	SOLVE	
F6	f'	
f F1	$i\sum_n$	
f F2	$i\prod_n$	
f F3	PGMPLT	
f F4	PGMINT	
f F5	PGMSLV	
f F6	PGMDRV	
g F1	$\infty\sum_n$	
g F2	SLVQ	
g F3	SLVC	
g F4	SLVP	
g F5		
g F6	f''	

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ALL	All variables					
g-shift	PV	STATS	↑EST	↑Lim	↑X	↑Y
f-shift	Mat_A	Mat_B	Mat_X	NPPER	PMT	PPER/a
unshifted	ACC	CPER/a	FV	GRAMOD	HISTO	I%/a
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ALL	MENU (ASM)	All variables	Auto-generated catalog of all variables ; Info : Matrix variables STATS and HISTO are also included in this menu, if created	*Catalog*		ALLVARS	
F1	ACC	Variable (real)	Accuracy of the integrator	Reserved Real variable for the accuracy of the integrator (ACC) ; set interactively from menu Tool∫ ; TI : 'ACC':	*Integrator*		ACC	0
F2	CPER/a	Variable (real)	TVM compounding periods	Reserved Real variable for the TVM compounding periods per annum (cp/a) ; displays as c_a or c in menu TVM when value ≠ 0 ; TI : CPER/a = Compounding periods p.a. =	*Financial*		CPER/a	12
F3	FV	Variable (real)	TVM future value	Reserved Real variable for the TVM future value (FV) ; displays as F in menu TVM when value is large ; TI : FV = Future Value =	*Financial*		FV	0
F4	GRAMOD	Variable (longint)	Graphics display mode	Reserved LongInteger variable for the graphics display mode (GRAMOD) ; set interactively from menu P.FN1 (AGRAPH) ; Info : OR: 0 ; SET: 1 ; OFF: 2 ; XOR: 3	*Programming*		GRAMOD	0
F5	HISTO	Variable (matrix)	Histogram matrix	Reserved Matrix variable (cannot be deleted) for the histogram matrix (HISTO) ; created from STATS using menu HIST ; not created after RESET	*Plotting and statistics*		HISTO	
F6	I%/a	Variable (real)	TVM annual interest rate	Reserved Real variable for the TVM annual interest rate as percentage (I/a) ; use 10 for 10%, not 0.1 ; displays as I_a or I in menu TVM when value is large ; TI : I%/a = I%YR = APR =	*Financial*		I%/a	0
fF1	Mat_A	Variable (matrix)	Matrix A	Reserved Matrix variable for the Matrix A (Mat A) ; enter equation coefficient matrix using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_A	
fF2	Mat_B	Variable (matrix)	Matrix B	Reserved Matrix variable for the Matrix B (Mat B) ; enter equation result vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_B	
fF3	Mat_X	Variable (matrix)	Matrix X	Reserved Matrix variable for the Matrix X (Mat X) ; calculate equation solution vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_X	
fF4	NPPER	Variable (real)	TVM number of payments	Reserved Real variable for the TVM number of payments (n) ; TI : NPPER = n pay periods =	*Financial*		NPPER	0
fF5	PMT	Variable (real)	TVM payment	Reserved Real variable for the TVM payment (PMT) ; displays as P_m or P in menu TVM when value is large ; TI : PMT = Payment =	*Financial*		PMT	0
fF6	PPER/a	Variable (real)	TVM payment period	Reserved Real variable for the TVM payment period per annum (pp/a) ; displays as p_a or p in menu TVM when value ≠ 0 ; TI : PPER/a = Pay periods p.a. =	*Financial*		PPER/a	12
gF1	PV	Variable (real)	TVM present value	Reserved Real variable for the TVM present value (PV) ; displays as P_v or P in menu TVM when value is large ; TI : PV = Present Value =	*Financial*		PV	0
gF2	STATS	Variable (matrix)	Statistics matrix	Reserved Matrix variable (cannot be deleted) for the statistics matrix (STATS) ; created from data entered using Σ+ ; not created after RESET ; TI : Re-calculating sums ... ; may be shown when storing or loading the statistics matrix	*Plotting and statistics*		STATS	
gF3	↑EST	Variable (real)	Upper estimate for solver	Reserved Real variable for the upper estimate for solver (↑Est) ; displays as ↑E in menu ToolS for larger values ; set interactively from menu ToolS and set by $realSlv_y^x$ or $cpxSlv_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↑EST	0
gF4	↑Lim	Variable (real)	Upper limit for integrator	Reserved Real variable for the upper limit for integrator (↑Lim) ; displays as ↑L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↑ Upper limit :	*Integrator*		↑Lim	0
gF5	↑X	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by $Draw_y^x$; TI : '↑X':	*Plotting*		↑X	10
gF6	↑Y	Variable (real)	Upper limit for Y-axis	Reserved Real variable for the upper limit for Y-axis (↑Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↑Y':	*Plotting*		↑Y	10

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ALL	All variables					
g-shift						
f-shift						
unshifted	↓EST	↓Lim	↓X	↓Y		
Page 2	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_ALLVARS_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_ALPHA__page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	ALL	MENU (ASM)	All variables	Auto-generated catalog of all variables ; Info : Matrix variables STATS and HISTO are also included in this menu, if created	*Catalog*		ALLVARS	
F1	↓EST	Variable (real)	Lower estimate for solver	Reserved Real variable for the lower estimate for solver (↓Est) ; displays as ↓E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$_y^x$ or cpxSlv$_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↓EST	0
F2	↓Lim	Variable (real)	Lower limit for integrator	Reserved Real variable for the lower limit for integrator (↓Lim) ; displays as ↓L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↓ Lower limit :	*Integrator*		↓Lim	0
F3	↓X	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$_y^x$; TI : '↓X' :	*Plotting*		↓X	-10
F4	↓Y	Variable (real)	Lower limit for Y-axis	Reserved Real variable for the lower limit for Y-axis (↓Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↓Y' :	*Plotting*		↓Y	0
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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ALPHA	Alpha input					
g-shift	CAPS ▣	NUM ◻	$^{SUP}_{SUB}$ ◻	USER ◻	↑	↓
f-shift	Myα	X.EDIT	X.SWAP	ASN	←·	·→
unshifted	A...Ω	αMath	αMisc	αINTL	←	→
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Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_ALLVARS_page_2.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_AMORT_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ALPHA	MENU	Alpha input	Alpha menu to enter, edit and clear alpha input ; Shortcut : alpha long [<f>] (because KEY.LP is SET ; also available in alpha mode of PEM ; not available in TamAlpha) ; Info : Alpha Input Mode is opened in UPPERCASE ; menu CAT [ALPHA] is available on keyboard alpha f[+] ; alpha g-shift characters can also be reached from alpha longpress keyboard	*Text input*		ALPHA	
F1	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F2	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F3	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F4	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F5	←	Arrow	Cursor left	Move cursor left	*Text input*			
F6	→	Arrow	Cursor right	Move cursor right	*Text input*			
fF1	Myα	MENU	MyAlpha	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R ; Shortcut : alpha long [EXIT] ; EIM long [EXIT] ; alpha long [<g>] (because KEY.LP is SET ; also available in alpha mode of PEM)	*Customisation*		Myα	
fF2	X.EDIT	Command	Edit X	Edit contents of stack register X as text ; Shortcut : alpha long [ENTER] ; EIM long [ENTER]	*Text input*		X.EDIT	
fF3	X.SWAP	Command	Swap X	Swap contents of X register with input of alpha buffer or equation editor	*Text input*		X.SWAP	
fF4	ASN	Command	Assign	Assign function, menu or character to a keyboard key or to a button in a menu ; for options including creating user defined menus, see reference page ; TAM : ASSIGN α (f[XEQ]) activates "ASSIGN '␣ TamAlpha menu _" and allows a function or command to be spelled, to assign it to a key or button ; Info : "ASSIGN _ _" indicates that a key or button can be pressed to assign it to another button or key ; use button ASN ([ALPHA.1]fF4) for character assignments in Alpha Input Mode ; this button is not shown in Program Entry Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf	*Text input*		ASSIGN	
fF5	←·	Arrow	Cursor left by 10	Move cursor left by 10 positions	*Text input*			
fF6	·→	Arrow	Cursor right by 10	Move cursor right by 10 positions	*Text input*			
gF1	CAPS ▣	Setting	Alpha capslock	Switch on alpha capslock ; not programmable ; Shortcut : alpha f[↑] / alpha f[↓] ; Info : sets initial case of menu A...Ω/α...ω and αINTL/αintl ; toggling alpha capslock clears Numlock ; SBI : A ; a	*Text input*	αCAP		ON
gF2	NUM ◻	Setting	Numlock	Switch on numlock ; not programmable - in PEM, use flag NUM ; Shortcut : alpha f[↑] / alpha f[↓] ; SBI : *N*	*Numeric input*	NUM		OFF
gF3	$^{SUP}{}_{SUB}$ ◻	Setting (cyclic)	Normal-super-subscript	Cycle normal-super-subscript (locking) ; Shortcut : alpha g[↑] / alpha g[↓] ; Info : button shows $^{SUP}{}_{SUB}$; α^{SUP} ; α_{SUB} ; SBI : $_A A^A$; $_a a^a$; $_N N^N$	*Text input*			Normal
gF4	USER ◻	Setting	USER mode	Switch on USER mode ; not programmable - in PEM, use flag USER ; Info : To assign USER to a key or button, use ASN (g[DRG]) and spell the name as 'USER' ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf ; SBI : U	*Customisation*	USER		OFF
gF5	↑	Arrow	Cursor up	Move cursor up	*Text input*			
gF6	↓	Arrow	Cursor down	Move cursor down	*Text input*			

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p1	ALPHA	Link
F1	A...Ω	https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_1.pdf
F2	αMath	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMATH_page_1.pdf
F3	αMisc	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMisc_page_1.pdf
F4	αINTL	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaINTL_page_1.pdf
F5	←	
F6	→	
f F1	Myα	https://47calc.com/doc/R47/Menus/R47v0_Menu_MyAlpha_page_1.pdf
f F2	X.EDIT	
f F3	X.SWAP	
f F4	ASN	
f F5	←·	
f F6	·→	
g F1	CAPS ▣	
g F2	NUM □	
g F3	SUP SUB □	
g F4	USER □	
g F5	↑	
g F6	↓	

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α (ALPHA)	Alpha input					
g-shift	CAPS ▣	NUM ◻	$^{SUP}_{SUB}$ ◻	USER ◻	↑	↓
f-shift	Myα	X.EDIT	X.SWAP	ASN	←·	·→
unshifted	A...Ω	αMath	αMisc	αINTL	←	→
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	α (ALPHA)	MENU (item)	Alpha input	Open alpha menu to enter, edit and clear alpha input ; when TAM is active, open menu TamAlpha ; Shortcut : longpress [XEQ] (even when M.14 is ON) ; Info : Alpha Input Mode is opened in UPPERCASE ; menu CAT [ALPHA] is available on keyboard alpha f[+] ; alpha g-shift characters can also be reached from alpha longpress keyboard	*Text input*		ALPHA	
F1	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F2	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F3	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F4	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F5	←	Arrow	Cursor left	Move cursor left	*Text input*			
F6	→	Arrow	Cursor right	Move cursor right	*Text input*			
fF1	Myα	MENU	MyAlpha	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R ; Shortcut : alpha long [EXIT] ; EIM long [EXIT] ; alpha long [<g>] (because KEY.LP is SET ; also available in alpha mode of PEM)	*Customisation*		Myα	
fF2	X.EDIT	Command	Edit X	Edit contents of stack register X as text ; Shortcut : alpha long [ENTER] ; EIM long [ENTER]	*Text input*		X.EDIT	
fF3	X.SWAP	Command	Swap X	Swap contents of X register with input of alpha buffer or equation editor	*Text input*		X.SWAP	
fF4	ASN	Command	Assign	Assign function, menu or character to a keyboard key or to a button in a menu ; for options including creating user defined menus, see reference page ; TAM : ASSIGN α (f[XEQ]) activates "ASSIGN '␣ TamAlpha menu _" and allows a function or command to be spelled, to assign it to a key or button ; Info : "ASSIGN _ _" indicates that a key or button can be pressed to assign it to another button or key ; use button ASN ([ALPHA.1]fF4) for character assignments in Alpha Input Mode ; this button is not shown in Program Entry Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf	*Text input*		ASSIGN	
fF5	←·	Arrow	Cursor left by 10	Move cursor left by 10 positions	*Text input*			
fF6	·→	Arrow	Cursor right by 10	Move cursor right by 10 positions	*Text input*			
gF1	CAPS ▣	Setting	Alpha capslock	Switch on alpha capslock ; not programmable ; Shortcut : alpha f[↑] / alpha f[↓] ; Info : sets initial case of menu A...Ω/α...ω and αINTL/αintl ; toggling alpha capslock clears Numlock ; SBI : A ; a	*Text input*	αCAP		ON
gF2	NUM □	Setting	Numlock	Switch on numlock ; not programmable - in PEM, use flag NUM ; Shortcut : alpha f[↑] / alpha f[↓] ; SBI : *N*	*Numeric input*	NUM		OFF
gF3	$^{SUP}{}_{SUB}$ □	Setting (cyclic)	Normal-super-subscript	Cycle normal-super-subscript (locking) ; Shortcut : alpha g[↑] / alpha g[↓] ; Info : button shows $^{SUP}{}_{SUB}$; α^{SUP} ; α_{SUB} ; SBI : $_A A^A$; $_a a^a$; $_N N^N$	*Text input*			Normal
gF4	USER □	Setting	USER mode	Switch on USER mode ; not programmable - in PEM, use flag USER ; Info : To assign USER to a key or button, use ASN (g[DRG]) and spell the name as 'USER' ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf ; SBI : U	*Customisation*	USER		OFF
gF5	↑	Arrow	Cursor up	Move cursor up	*Text input*			
gF6	↓	Arrow	Cursor down	Move cursor down	*Text input*			

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p1	α (ALPHA)	Link
F1	A...Ω	https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_1.pdf
F2	αMath	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMATH_page_1.pdf
F3	αMisc	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMisc_page_1.pdf
F4	αINTL	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaINTL_page_1.pdf
F5	←	
F6	→	
f F1	Myα	https://47calc.com/doc/R47/Menus/R47v0_Menu_MyAlpha_page_1.pdf
f F2	X.EDIT	
f F3	X.SWAP	
f F4	ASN	
f F5	←·	
f F6	·→	
g F1	CAPS ▣	
g F2	NUM □	
g F3	$^{SUP}_{SUB}$ □	
g F4	USER □	
g F5	↑	
g F6	↓	

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α.FN	Alpha functions					
g-shift	αTRIM	αREV	αIP	αMID	αLEFT	αRIGHT
f-shift	αSL	αSR	αRL	αRR	αLOWER	αUPPER
unshifted	FBR	α→x	x→α	αLENG	αPOS	~~αPARSE~~
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaINTL_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	α.FN	MENU	Alpha functions	Alpha (text string) functions	*Text functions*		α.FN	
F1	FBR	Browser (nonpgm)	Font browser	Browse system fonts (character tables) ; Info : Press [EXIT] to exit Font browser and browse using [↑] and [↓] ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Font_browser.pdf	*Text functions*		FBR	
F2	α→x	Function (monadic)	Alpha to X	Convert first alpha character of text string in register or variable to character code (hexadecimal) amd remove this character ; TAM : α→x __ Tam menu ; Info : for empty text string, α→x returns 0 only	*Text functions*		α→x	
F3	x→α	Function (monadic)	X to alpha	Append character, character code (converted to character), text string or real matrix (converted to text string) to register or variable ; TAM : x→α __ Tam menu ; Info : when X is selected as the destination register or variable, the input is replaced, not appended to (unless it contains a text string in which case it is appended to itself) ; in all cases the original value of X is saved in LASTx ; Error 33 -- Output would exceed 508 characters -- may be raised	*Text functions*		x→α	
F4	αLENG	Command	Alpha length	Get length of text string in register or variable ; TAM : αLENG __ Tam menu	*Text functions*		αLENG	
F5	αPOS	Command	Alpha position	Get position (starting from 0) of substring, character or character code in X within text string in register or variable ; TAM : αPOS __ Tam menu ; Info : for substring not found or empty text string, αPOS returns -1	*Text functions*		αPOS	
F6	~~αPARSE~~	Command (strike)	Alpha parse	Parse alpha input for numeric content (in development)	*Text functions*		~~αPARSE~~	
fF1	αSL	Function (monadic)	Alpha shift left	Shift text string in register or variable to the left, deleting X characters ; TAM : αSL __ Tam menu ; Info : for empty text string, αSL acts as NOP	*Text functions*		αSL	
fF2	αSR	Function (monadic)	Alpha shift right	Shift text string in register or variable to the right, deleting X characters ; TAM : αSR __ Tam menu ; Info : for empty text string, αSR acts as NOP	*Text functions*		αSR	
fF3	αRL	Function (monadic)	Alpha rotate left	Rotate text string in register or variable by X characters to the left ; TAM : αRL __ Tam menu ; Info : for empty text string, αRL acts as NOP	*Text functions*		αRL	
fF4	αRR	Function (monadic)	Alpha rotate right	Rotate text string in register or variable by X characters to the right ; TAM : αRR __ Tam menu ; Info : for empty text string, αRR acts as NOP	*Text functions*		αRR	
fF5	αLOWER	Function (monadic)	Alpha lowercase	Lowercase of text string in register or variable ; TAM : αLOWER __ Tam menu	*Text functions*		αLOWER	
fF6	αUPPER	Function (monadic)	Alpha UPPERcase	Uppercase of text string in register or variable ; TAM : αUPPER __ Tam menu	*Text functions*		αUPPER	
gF1	αTRIM	Function (monadic)	Alpha trim	Trim character(s) in X from both sides of text string in register or variable ; X may contain a character or character code ; TAM : αTRIM __ Tam menu	*Text functions*		αTRIM	
gF2	αREV	Function (monadic)	Alpha reverse	Reverse text string in register or variable ; TAM : αREV __ Tam menu	*Text functions*		αREV	
gF3	αIP	Command	Alpha Integer Part	Append integer part of X to text string in register or variable ; TAM : αIP __ Tam menu ; Info : if the register or variable does not contain a text string, αIP will first convert it to text string	*Text functions*		αIP	
gF4	αMID	Command	Alpha middle	Get X characters of text string, starting at position Y ; X and Y are dropped ; TAM : αMID __ Tam menu	*Text functions*		αMID	
gF5	αLEFT	Command	Alpha left	Left X characters of text string in register or variable ; X is dropped ; TAM : αLEFT __ Tam menu	*Text functions*		αLEFT	
gF6	αRIGHT	Command	Alpha right	Right X characters of text string in register or variable ; X is dropped ; TAM : αRIGHT __ Tam menu	*Text functions*		αRIGHT	

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A...Ω	ALPHA...OMEGA					
g-shift	M	N	Ξ	O	Π	Ρ
f-shift	Z	H	Θ	I	K	Λ
unshifted	A	B	Γ	Δ	E	F
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_2.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F1	Α	Character	ALPHA	Greek character Α ; Fontcode : 0391_{16} ; Info : press [↓] for α at [α...ω.1]F1	*Characters*			
F2	Β	Character	BETA	Greek character Β ; Fontcode : 0392_{16} ; Info : press [↓] for β at [α...ω.1]F2	*Characters*			
F3	Γ	Character	GAMMA	Greek character Γ ; Fontcode : 0393_{16} ; Info : press [↓] for γ at [α...ω.1]F3	*Characters*			
F4	Δ	Character	DELTA	Greek character Δ ; Shortcut : alpha g[RCL] ; Info : Fontcode : 0394_{16} ; press [↓] for δ at [α...ω.1]F4	*Characters*			
F5	Ε	Character	EPSILON	Greek character Ε ; Fontcode : 0395_{16} ; Info : press [↓] for ε at [α...ω.1]F5	*Characters*			
F6	Ϝ	Character	DIGAMMA	Greek character Ϝ ; Fontcode : $03DC_{16}$; Info : press [↓] for ϝ at [α...ω.1]F6	*Characters*			
fF1	Ζ	Character	ZETA	Greek character Ζ ; Fontcode : 0396_{16} ; Info : press [↓] for ζ at [α...ω.1]fF1	*Characters*			
fF2	Η	Character	ETA	Greek character Η ; Fontcode : 0397_{16} ; Info : press [↓] for η at [α...ω.1]fF2	*Characters*			
fF3	Θ	Character	THETA	Greek character Θ ; Fontcode : 0398_{16} ; Info : press [↓] for ϑ at [α...ω.1]fF3	*Characters*			
fF4	Ι	Character	IOTA	Greek character Ι ; Fontcode : 0399_{16} ; Info : press [↓] for ι at [α...ω.1]fF4	*Characters*			
fF5	Κ	Character	KAPPA	Greek character Κ ; Fontcode : $039A_{16}$; Info : press [↓] for κ at [α...ω.1]fF5	*Characters*			
fF6	Λ	Character	LAMDA	Greek character Λ ; Fontcode : $039B_{16}$; Info : press [↓] for λ at [α...ω.1]fF6	*Characters*			
gF1	Μ	Character	MU	Greek character Μ ; Fontcode : $039C_{16}$; Info : press [↓] for μ at [α...ω.1]gF1	*Characters*			
gF2	Ν	Character	NU	Greek character Ν ; Fontcode : $039D_{16}$; Info : press [↓] for ν at [α...ω.1]gF2	*Characters*			
gF3	Ξ	Character	XI	Greek character Ξ ; Fontcode : $039E_{16}$; Info : press [↓] for ξ at [α...ω.1]gF3	*Characters*			
gF4	Ο	Character	OMICRON	Greek character Ο ; Fontcode : $039F_{16}$; Info : press [↓] for ο at [α...ω.1]gF4	*Characters*			
gF5	Π	Character	PI	Greek character Π ; Fontcode : $03A0_{16}$; Info : press [↓] for π at [α...ω.1]gF5	*Characters*			
gF6	Ϙ	Character	KOPPA	Greek character Ϙ ; Fontcode : $03D8_{16}$; Info : press [↓] for ϙ at [α...ω.1]gF6	*Characters*			

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A...Ω	ALPHA...OMEGA					
g-shift						
f-shift	Χ	Ψ	Ω	Θ		
unshifted	Ρ	Σ	Σ	Τ	Υ	Φ
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_3.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F1	Ρ	Character	RHO	Greek character Ρ ; Fontcode : $03A1_{16}$; Info : press [↓] for ρ at [α...ω.2]F1	*Characters*			
F2	Σ	Character	SIGMA	Greek character Σ ; Info : Fontcode : $03A3_{16}$; press [↓] for σ at [α...ω.2]F2	*Characters*			
F3	Σ	Character	SIGMA	Greek character Σ ; Fontcode : $03A3_{16}$; Info : press [↓] for ς at [α...ω.2]F3	*Characters*			
F4	Τ	Character	TAU	Greek character Τ ; Fontcode : $03A4_{16}$; Info : press [↓] for τ at [α...ω.2]F4	*Characters*			
F5	Υ	Character	UPSILON	Greek character Υ ; Fontcode : $03A5_{16}$; Info : press [↓] for υ at [α...ω.2]F5	*Characters*			
F6	Φ	Character	PHI	Greek character Φ ; Fontcode : $03A6_{16}$; Info : press [↓] for φ at [α...ω.2]F6	*Characters*			
fF1	Χ	Character	CHI	Greek character Χ ; Fontcode : $03A7_{16}$; Info : press [↓] for χ at [α...ω.2]fF1	*Characters*			
fF2	Ψ	Character	PSI	Greek character Ψ ; Fontcode : $03A8_{16}$; Info : press [↓] for ψ at [α...ω.2]fF2	*Characters*			
fF3	Ω	Character	OMEGA	Greek character Ω ; Fontcode : $03A9_{16}$; Info : press [↓] for ω at [α...ω.2]fF3	*Characters*			
fF4	Ϡ	Character	SAMPI	Greek character Ϡ ; Fontcode : $03E0_{16}$; Info : press [↓] for ϡ at [α...ω.2]fF4	*Characters*			
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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A...Ω	ALPHA...OMEGA					
g-shift						
f-shift						
unshifted	Ï			Ÿ		
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_alpha-omega-lower_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F1	Ϊ	Character	IOTA dialytika	Greek character Ϊ ; Fontcode : $03AA_{16}$; Info : press [↓] for ϊ at [α...ω.3] F1	*Characters*			
F2								
F3								
F4	Ϋ	Character	UPSILON dialytika	Greek character Ϋ ; Fontcode : $03AB_{16}$; Info : press [↓] for ϋ at [α...ω.3] F4	*Characters*			
F5								
F6								
f F1								
f F2								
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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α...ω	alpha...omega					
g-shift	μ	ν	ξ	ο	π	ρ
f-shift	ζ	η	θ	ι	κ	λ
unshifted	α	β	γ	δ	ε	ϝ
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	α...ω	MENU	alpha...omega	Lowercase Greek characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		α...ω	
F1	α	Character	alpha	Greek character α ; Shortcut : alpha f[XEQ] ; Info : Fontcode : $03B1_{16}$; press [↑] for A at [A...Ω.1]F1	*Characters*			
F2	β	Character	beta	Greek character β ; Fontcode : $03B2_{16}$; Info : press [↑] for B at [A...Ω.1]F2	*Characters*			
F3	γ	Character	gamma	Greek character γ ; Fontcode : $03B3_{16}$; Info : press [↑] for Γ at [A...Ω.1]F3	*Characters*			
F4	δ	Character	delta	Greek character δ ; Fontcode : $03B4_{16}$; Info : press [↑] for Δ at [A...Ω.1]F4	*Characters*			
F5	ε	Character	epsilon	Greek character ε ; Fontcode : $03B5_{16}$; Info : press [↑] for E at [A...Ω.1]F5	*Characters*			
F6	ϝ	Character	digamma	Greek character ϝ ; Fontcode : $03DD_{16}$; Info : press [↑] for F at [A...Ω.1]F6	*Characters*			
fF1	ζ	Character	zeta	Greek character ζ ; Fontcode : $03B6_{16}$; Info : press [↑] for Z at [A...Ω.1]fF1	*Characters*			
fF2	η	Character	eta	Greek character η ; Fontcode : $03B7_{16}$; Info : press [↑] for H at [A...Ω.1]fF2	*Characters*			
fF3	ϑ	Character	theta-script	Greek character ϑ ; Fontcode : $03D1_{16}$; Info : press [↑] for Θ at [A...Ω.1]fF3	*Characters*			
fF4	ι	Character	iota	Greek character ι ; Fontcode : $03B9_{16}$; Info : press [↑] for I at [A...Ω.1]fF4	*Characters*			
fF5	κ	Character	kappa	Greek character κ ; Fontcode : $03BA_{16}$; Info : press [↑] for K at [A...Ω.1]fF5	*Characters*			
fF6	λ	Character	lamda	Greek character λ ; Fontcode : $03BB_{16}$; Info : press [↑] for Λ at [A...Ω.1]fF6	*Characters*			
gF1	μ	Character	mu	Greek character μ ; Fontcode : $03BC_{16}$; Info : press [↑] for M at [A...Ω.1]gF1	*Characters*			
gF2	ν	Character	nu	Greek character ν ; Fontcode : $03BD_{16}$; Info : press [↑] for N at [A...Ω.1]gF2	*Characters*			
gF3	ξ	Character	xi	Greek character ξ ; Fontcode : $03BE_{16}$; Info : press [↑] for Ξ at [A...Ω.1]gF3	*Characters*			
gF4	ο	Character	omicron	Greek character ο ; Fontcode : $03BF_{16}$; Info : press [↑] for O at [A...Ω.1]gF4	*Characters*			
gF5	π	Character	pi	Greek character π ; Shortcut : alpha g[R↓] ; Info : Fontcode : $03C0_{16}$; press [↑] for Π at [A...Ω.1]gF5	*Mathematics and characters*			
gF6	ϙ	Character	koppa	Greek character ϙ ; Fontcode : $03D9_{16}$; Info : press [↑] for Ϙ at [A...Ω.1]gF6	*Characters*			

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α...ω	alpha...omega					
g-shift	ά	έ	ή	ί	ΐ	
f-shift	χ	ψ	ω	ϗ		
unshifted	ρ	σ	ς	τ	υ	φ
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_alpha-omega-lower_page_3.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	α...ω	MENU	alpha...omega	Lowercase Greek characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		α...ω	
F1	ρ	Character	rho	Greek character ρ ; Fontcode : $03C1_{16}$; Info : press [↑] for P at [A...Ω.2]F1	*Characters*			
F2	σ	Character	sigma	Greek character σ ; Fontcode : $03C3_{16}$; Info : press [↑] for Σ at [A...Ω.2]F2	*Characters*			
F3	ς	Character	final sigma	Greek character ς ; Fontcode : $03C2_{16}$; Info : press [↑] for Σ at [A...Ω.2]F3	*Characters*			
F4	τ	Character	tau	Greek character τ ; Fontcode : $03C4_{16}$; Info : press [↑] for T at [A...Ω.2]F4	*Characters*			
F5	υ	Character	upsilon	Greek character υ ; Fontcode : $03C5_{16}$; Info : press [↑] for Y at [A...Ω.2]F5	*Characters*			
F6	φ	Character	phi	Greek character φ ; Fontcode : $03C6_{16}$; Info : press [↑] for Φ at [A...Ω.2]F6	*Characters*			
fF1	χ	Character	chi	Greek character χ ; Fontcode : $03C7_{16}$; Info : press [↑] for X at [A...Ω.2]fF1	*Characters*			
fF2	ψ	Character	psi	Greek character ψ ; Fontcode : $03C8_{16}$; Info : press [↑] for Ψ at [A...Ω.2]fF2	*Characters*			
fF3	ω	Character	omega	Greek character ω ; Fontcode : $03C9_{16}$; Info : press [↑] for Ω at [A...Ω.2]fF3	*Characters*			
fF4	ϡ	Character	sampi	Greek character ϡ ; Fontcode : $03E1_{16}$; Info : press [↑] for Ϡ at [A...Ω.2]fF4	*Characters*			
fF5								
fF6								
gF1	ά	Character	alpha tonos	Greek character ά ; Fontcode : $03AC_{16}$	*Characters*			
gF2	έ	Character	epsilon tonos	Greek character έ ; Fontcode : $03AD_{16}$	*Characters*			
gF3	ή	Character	eta tonos	Greek character ή ; Fontcode : $03AE_{16}$	*Characters*			
gF4	ί	Character	iota tonos	Greek character ί ; Fontcode : $03AF_{16}$	*Characters*			
gF5	ΐ	Character	iota dialytika tonos	Greek character ΐ ; Fontcode : 0390_{16}	*Characters*			
gF6								

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α...ω	alpha...omega					
g-shift						
f-shift						
unshifted	ϊ	ό	ύ	ϋ	ΰ	ώ
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_alpha-FN_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	α...ω	MENU	alpha...omega	Lowercase Greek characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		α...ω	
F1	ϊ	Character	iota dialytika	Greek character ϊ ; Fontcode : $03CA_{16}$; Info : press [↑] for Ϊ at [A...Ω.3] F1	*Characters*			
F2	ό	Character	omicron tonos	Greek character ό ; Fontcode : $03CC_{16}$	*Characters*			
F3	ύ	Character	upsilon tonos	Greek character ύ ; Fontcode : $03CD_{16}$	*Characters*			
F4	ϋ	Character	upsilon dialytika	Greek character ϋ ; Fontcode : $03CB_{16}$; Info : press [↑] for Ϋ at [A...Ω.3] F4	*Characters*			
F5	ΰ	Character	upsilon dialytika tonos	Greek character ΰ ; Fontcode : $03B0_{16}$	*Characters*			
F6	ώ	Character	omega tonos	Greek character ώ ; Fontcode : $03CE_{16}$	*Characters*			
f F1								
f F2								
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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αINTL	Alpha international					
g-shift	Č	Ď	Đ	È	É	Ê
f-shift	Æ	Ā	Ă	Ą	Ç	Ć
unshifted	À	Á	Â	Ã	Ä	Å
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F1	À	Character	A grave	International character À ; Fontcode : $00C0_{16}$; Info : press [↓] for à at [αintl.1] F1	*Characters*			
F2	Á	Character	A accute	International character Á ; Fontcode : $00C1_{16}$; Info : press [↓] for á at [αintl.1] F2	*Characters*			
F3	Â	Character	A circumflex	International character Â ; Fontcode : $00C2_{16}$; Info : press [↓] for â at [αintl.1] F3	*Characters*			
F4	Ã	Character	A tilde	International character Ã ; Fontcode : $00C3_{16}$; Info : press [↓] for ã at [αintl.1] F4	*Characters*			
F5	Ä	Character	A diaresis	International character Ä ; Fontcode : $00C4_{16}$; Info : press [↓] for ä at [αintl.1] F5	*Characters*			
F6	Å	Character	A ring	International character Å ; Fontcode : $00C5_{16}$; Info : press [↓] for å at [αintl.1] F6	*Characters*			
fF1	Æ	Character	AE	International character Æ ; Fontcode : $00C6_{16}$; Info : press [↓] for æ at [αintl.1] fF1	*Characters*			
fF2	Ā	Character	A macron	International character Ā ; Fontcode : $017F_{16}$; exported as 0100_{16} ; Info : press [↓] for ā at [αintl.1] fF2	*Characters*			
fF3	Ă	Character	A breve	International character Ă ; Fontcode : 0102_{16} ; Info : press [↓] for ă at [αintl.1] fF3	*Characters*			
fF4	Ą	Character	A ogonek	International character Ą ; Fontcode : 0104_{16} ; Info : press [↓] for ą at [αintl.1] fF4	*Characters*			
fF5	Ç	Character	C cedilla	International character Ç ; Fontcode : $00C7_{16}$; Info : press [↓] for ç at [αintl.1] fF5	*Characters*			
fF6	Ć	Character	C accute	International character Ć ; Fontcode : 0106_{16} ; Info : press [↓] for ć at [αintl.1] fF6	*Characters*			
gF1	Č	Character	C caron	International character Č ; Fontcode : $010C_{16}$; Info : press [↓] for č at [αintl.1] gF1	*Characters*			
gF2	Ď	Character	D caron	International character Ď ; Fontcode : $010E_{16}$	*Characters*			
gF3	Đ	Character	D stroke	International character Đ ; Fontcode : 0110_{16} ; Info : press [↓] for đ at [αintl.1] gF3	*Characters*			
gF4	È	Character	E grave	International character È ; Fontcode : $00C8_{16}$; Info : press [↓] for è at [αintl.1] gF4	*Characters*			
gF5	É	Character	E accute	International character É ; Fontcode : $00C9_{16}$; Info : press [↓] for é at [αintl.1] gF5	*Characters*			
gF6	Ê	Character	E circumflex	International character Ê ; Fontcode : $00CA_{16}$; Info : press [↓] for ê at [αintl.1] gF6	*Characters*			

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αINTL	Alpha international					
g-shift	Ǐ	Ị	İ	Ĺ	Ľ	Ł
f-shift	Ǧ	Ì	Í	Î	Ï	Ī
unshifted	Ë	Ē	Ě	Ė	Ę	Ĕ
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F1	Ë	Character	E diaresis	International character Ë ; Fontcode : $00CB_{16}$; Info : press [↓] for ë at [αintl.2] F1	*Characters*			
F2	Ē	Character	E macron	International character Ē ; Fontcode : 0112_{16} ; Info : press [↓] for ē at [αintl.2] F2	*Characters*			
F3	Ĕ	Character	E breve	International character Ĕ ; Fontcode : 0114_{16} ; Info : press [↓] for ĕ at [αintl.2] F3	*Characters*			
F4	Ė	Character	E dot	International character Ė ; Fontcode : 0116_{16} ; Info : press [↓] for ė at [αintl.2] F4	*Characters*			
F5	Ę	Character	E ogonek	International character Ę ; Fontcode : 0118_{16} ; Info : press [↓] for ę at [αintl.2] F5	*Characters*			
F6	Ě	Character	E caron	International character Ě ; Fontcode : $011A_{16}$; Info : press [↓] for ě at [αintl.2] F6	*Characters*			
fF1	Ğ	Character	G breve	International character Ğ ; Fontcode : $011E_{16}$; Info : press [↓] for ğ at [αintl.2] fF1	*Characters*			
fF2	Ì	Character	I grave	International character Ì ; Fontcode : $00CC_{16}$; Info : press [↓] for ì at [αintl.2] fF2	*Characters*			
fF3	Í	Character	I accute	International character Í ; Fontcode : $00CD_{16}$; Info : press [↓] for í at [αintl.2] fF3	*Characters*			
fF4	Î	Character	I circumflex	International character Î ; Fontcode : $00CE_{16}$; Info : press [↓] for î at [αintl.2] fF4	*Characters*			
fF5	Ï	Character	I diaresis	International character Ï ; Fontcode : $00CF_{16}$; Info : press [↓] for ï at [αintl.2] fF5	*Characters*			
fF6	Ī	Character	I macron	International character Ī ; Fontcode : $012A_{16}$; Info : press [↓] for ī at [αintl.2] fF6	*Characters*			
gF1	Ĭ	Character	I breve	International character Ĭ ; Fontcode : $012C_{16}$; Info : press [↓] for ĭ at [αintl.2] gF1	*Characters*			
gF2	Ị	Character	I ogonek	International character Ị ; Fontcode : $012E_{16}$; Info : press [↓] for ị at [αintl.2] gF2	*Characters*			
gF3	İ	Character	I dot	International character İ ; Fontcode : 0130_{16} ; Info : press [↓] for ı at [αintl.2] gF3 (not Lowercase of İ)	*Characters*			
gF4	Ĺ	Character	L accute	International character Ĺ ; Fontcode : 0139_{16} ; Info : press [↓] for ĺ at [αintl.2] gF4	*Characters*			
gF5	Ľ	Character	L apostrophe	International character Ľ ; Fontcode : $013D_{16}$; Info : press [↓] for ľ at [αintl.2] gF5	*Characters*			
gF6	Ł	Character	L stroke	International character Ł ; Fontcode : 0141_{16} ; Info : press [↓] for ł at [αintl.2] gF6	*Characters*			

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αINTL	Alpha international					
g-shift	Ŕ	Ř	Ś	Ş	Š	ß
f-shift	Õ	Ö	ø	Ō	Ŏ	Œ
unshifted	Ñ	Ń	Ň	Ò	Ó	Ô
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F1	Ñ	Character	N tilde	International character Ñ ; Fontcode : $00D1_{16}$; Info : press [↓] for ñ at [αintl.3] F1	*Characters*			
F2	Ń	Character	N accute	International character Ń ; Fontcode : 0143_{16} ; Info : press [↓] for ń at [αintl.3] F2	*Characters*			
F3	Ň	Character	N caron	International character Ň ; Fontcode : 0147_{16} ; Info : press [↓] for ň at [αintl.3] F3	*Characters*			
F4	Ò	Character	O grave	International character Ò ; Fontcode : $00D2_{16}$; Info : press [↓] for ò at [αintl.3] F4	*Characters*			
F5	Ó	Character	O accute	International character Ó ; Fontcode : $00D3_{16}$; Info : press [↓] for ó at [αintl.3] F5	*Characters*			
F6	Ô	Character	O circumflex	International character Ô ; Fontcode : $00D4_{16}$; Info : press [↓] for ô at [αintl.3] F6	*Characters*			
fF1	Õ	Character	O tilde	International character Õ ; Fontcode : $00D5_{16}$; Info : press [↓] for õ at [αintl.3] fF1	*Characters*			
fF2	Ö	Character	O diaresis	International character Ö ; Fontcode : $00D6_{16}$; Info : press [↓] for ö at [αintl.3] fF2	*Characters*			
fF3	Ø	Character	O stroke	International character Ø ; Fontcode : $00D8_{16}$; Info : press [↓] for ø at [αintl.3] fF3	*Characters*			
fF4	Ō	Character	O macron	International character Ō ; Fontcode : $014C_{16}$; Info : press [↓] for ō at [αintl.3] fF4	*Characters*			
fF5	Ŏ	Character	O breve	International character Ŏ ; Fontcode : $014E_{16}$; Info : press [↓] for ŏ at [αintl.3] fF5	*Characters*			
fF6	Œ	Character	OE	International character Œ ; Fontcode : 0152_{16} ; Info : press [↓] for œ at [αintl.3] fF6	*Characters*			
gF1	Ŕ	Character	R accute	International character Ŕ ; Fontcode : 0154_{16} ; Info : press [↓] for ŕ at [αintl.3] gF1	*Characters*			
gF2	Ř	Character	R caron	International character Ř ; Fontcode : 0158_{16} ; Info : press [↓] for ř at [αintl.3] gF2	*Characters*			
gF3	Ś	Character	S accute	International character Ś ; Fontcode : $015A_{16}$; Info : press [↓] for ś at [αintl.3] gF3	*Characters*			
gF4	Ş	Character	S cedilla	International character Ş ; Fontcode : $015E_{16}$; Info : press [↓] for ş at [αintl.3] gF4	*Characters*			
gF5	Š	Character	S caron	International character Š ; Fontcode : 0160_{16} ; Info : press [↓] for š at [αintl.3] gF5	*Characters*			
gF6	ß	Character	sz	International character ß ; Fontcode : $00DF_{16}$; Info : press [↓] for ß at [αintl.3] gF6	*Characters*			

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αINTL	Alpha international					
g-shift	Ý	Ŷ	Ÿ	Ź	Ż	Ž
f-shift	Ũ	Ū	Ŭ	Ů	Ụ	Ŵ
unshifted	Ţ	Ť	Ù	Ú	Û	Ü
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F1	Ţ	Character	T cedilla	International character Ţ ; Fontcode : 0162_{16} ; Info : press [↓] for ţ at [αintl.4] F1	*Characters*			
F2	Ť	Character	T caron	International character Ť ; Fontcode : 0164_{16}	*Characters*			
F3	Ù	Character	U grave	International character Ù ; Fontcode : $00D9_{16}$; Info : press [↓] for ù at [αintl.4] F3	*Characters*			
F4	Ú	Character	U accute	International character Ú ; Fontcode : $00DA_{16}$; Info : press [↓] for ú at [αintl.4] F4	*Characters*			
F5	Û	Character	U circumflex	International character Û ; Fontcode : $00DB_{16}$; Info : press [↓] for û at [αintl.4] F5	*Characters*			
F6	Ü	Character	U diaresis	International character Ü ; Fontcode : $00DC_{16}$; Info : press [↓] for ü at [αintl.4] F6	*Characters*			
fF1	Ũ	Character	U tilde	International character Ũ ; Fontcode : 0168_{16} ; Info : press [↓] for ũ at [αintl.4] fF1	*Characters*			
fF2	Ū	Character	U macron	International character Ū ; Fontcode : $016A_{16}$; Info : press [↓] for ū at [αintl.4] fF2	*Characters*			
fF3	Ŭ	Character	U breve	International character Ŭ ; Fontcode : $016C_{16}$; Info : press [↓] for ŭ at [αintl.4] fF3	*Characters*			
fF4	Ů	Character	U ring	International character Ů ; Fontcode : $016E_{16}$; Info : press [↓] for ů at [αintl.4] fF4	*Characters*			
fF5	Ụ	Character	U ogonek	International character Ụ ; Fontcode : 0172_{16} ; Info : press [↓] for ụ at [αintl.4] fF5	*Characters*			
fF6	Ŵ	Character	W circumflex	International character Ŵ ; Fontcode : 0174_{16} ; Info : press [↓] for ŵ at [αintl.4] fF6	*Characters*			
gF1	Ý	Character	Y accute	International character Ý ; Fontcode : $00DD_{16}$; Info : press [↓] for ý at [αintl.4] gF1	*Characters*			
gF2	Ŷ	Character	Y circumflex	International character Ŷ ; Fontcode : 0176_{16} ; Info : press [↓] for ŷ at [αintl.4] gF2	*Characters*			
gF3	Ÿ	Character	Y diaresis	International character Ÿ ; Fontcode : 0178_{16} ; Info : press [↓] for ÿ at [αintl.4] gF3	*Characters*			
gF4	Ź	Character	Z accute	International character Ź ; Fontcode : 0179_{16} ; Info : press [↓] for ź at [αintl.4] gF4	*Characters*			
gF5	Ż	Character	Z dot	International character Ż ; Fontcode : $017B_{16}$; Info : press [↓] for ż at [αintl.4] gF5	*Characters*			
gF6	Ž	Character	Zcaron	International character Ž ; Fontcode : $017D_{16}$; Info : press [↓] for ž at [αintl.4] gF6	*Characters*			

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αintl	alpha international					
g-shift	č	ď	đ	è	é	ê
f-shift	æ	ā	ă	ą	ç	ć
unshifted	à	á	â	ã	ä	å
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	αintl	MENU	alpha international	Lowercase international characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		αintl	
F1	à	Character	a grave	International character à ; Fontcode : $00E0_{16}$; Info : press [↑] for À at [αINTL.1] F1	*Characters*			
F2	á	Character	a accute	International character á ; Fontcode : $00E1_{16}$; Info : press [↑] for Á at [αINTL.1] F2	*Characters*			
F3	â	Character	a circumflex	International character â ; Fontcode : $00E2_{16}$; Info : press [↑] for Â at [αINTL.1] F3	*Characters*			
F4	ã	Character	a tilde	International character ã ; Fontcode : $00E3_{16}$; Info : press [↑] for Ã at [αINTL.1] F4	*Characters*			
F5	ä	Character	a diaresis	International character ä ; Fontcode : $00E4_{16}$; Info : press [↑] for Ä at [αINTL.1] F5	*Characters*			
F6	å	Character	a ring	International character å ; Fontcode : $00E5_{16}$; Info : press [↑] for Å at [αINTL.1] F6	*Characters*			
fF1	æ	Character	ae	International character æ ; Fontcode : $00E6_{16}$; Info : press [↑] for Æ at [αINTL.1] fF1	*Characters*			
fF2	ā	Character	a macron	International character ā ; Fontcode : 0101_{16} ; Info : press [↑] for Ā at [αINTL.1] fF2	*Characters*			
fF3	ă	Character	a breve	International character ă ; Fontcode : 0103_{16} ; Info : press [↑] for Ă at [αINTL.1] fF3	*Characters*			
fF4	ą	Character	a ogonek	International character ą ; Fontcode : 0105_{16} ; Info : press [↑] for Ą at [αINTL.1] fF4	*Characters*			
fF5	ç	Character	c cedilla	International character ç ; Fontcode : $00E7_{16}$; Info : press [↑] for Ç at [αINTL.1] fF5	*Characters*			
fF6	ć	Character	c accute	International character ć ; Fontcode : 0107_{16} ; Info : press [↑] for Ć at [αINTL.1] fF6	*Characters*			
gF1	č	Character	c caron	International character č ; Fontcode : $010D_{16}$; Info : press [↑] for Č at [αINTL.1] gF1	*Characters*			
gF2	ď	Character	d apostrophe	International character ď ; Fontcode : $010F_{16}$	*Characters*			
gF3	đ	Character	d stroke	International character đ ; Fontcode : 0111_{16} ; Info : press [↑] for Đ at [αINTL.1] gF3	*Characters*			
gF4	è	Character	e grave	International character è ; Fontcode : $00E8_{16}$; Info : press [↑] for È at [αINTL.1] gF4	*Characters*			
gF5	é	Character	e accute	International character é ; Fontcode : $00E9_{16}$; Info : press [↑] for É at [αINTL.1] gF5	*Characters*			
gF6	ê	Character	e circumflex	International character ê ; Fontcode : $00EA_{16}$; Info : press [↑] for Ê at [αINTL.1] gF6	*Characters*			

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αintl	alpha international					
g-shift	ĭ	ị	ɩ	ĺ	ľ	ł
f-shift	ğ	ì	í	î	ï	ī
unshifted	ë	ē	ě	ė	ę	ě
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	αintl	MENU	alpha international	Lowercase international characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		αintl	
F1	ë	Character	e diaresis	International character ë ; Fontcode : $00EB_{16}$; Info : press [↑] for Ë at [αINTL.2] F1	*Characters*			
F2	ē	Character	e macron	International character ē ; Fontcode : 0113_{16} ; Info : press [↑] for Ē at [αINTL.2] F2	*Characters*			
F3	ĕ	Character	e breve	International character ĕ ; Fontcode : 0115_{16} ; Info : press [↑] for Ĕ at [αINTL.2] F3	*Characters*			
F4	ė	Character	e dot	International character ė ; Fontcode : 0117_{16} ; Info : press [↑] for Ė at [αINTL.2] F4	*Characters*			
F5	ę	Character	e ogonek	International character ę ; Fontcode : 0119_{16} ; Info : press [↑] for Ę at [αINTL.2] F5	*Characters*			
F6	ě	Character	e caron	International character ě ; Fontcode : $011B_{16}$; Info : press [↑] for Ě at [αINTL.2] F6	*Characters*			
fF1	ğ	Character	g breve	International character ğ ; Fontcode : $011F_{16}$; Info : press [↑] for Ğ at [αINTL.2] fF1	*Characters*			
fF2	ì	Character	i grave	International character ì ; Fontcode : $00EC_{16}$; Info : press [↑] for Ì at [αINTL.2] fF2	*Characters*			
fF3	í	Character	i accute	International character í ; Fontcode : $00ED_{16}$; Info : press [↑] for Í at [αINTL.2] fF3	*Characters*			
fF4	î	Character	i circumflex	International character î ; Fontcode : $00EE_{16}$; Info : press [↑] for Î at [αINTL.2] fF4	*Characters*			
fF5	ï	Character	i diaresis	International character ï ; Fontcode : $00EF_{16}$; Info : press [↑] for Ï at [αINTL.2] fF5	*Characters*			
fF6	ī	Character	i macron	International character ī ; Fontcode : $012B_{16}$; Info : press [↑] for Ī at [αINTL.2] fF6	*Characters*			
gF1	ĭ	Character	i breve	International character ĭ ; Fontcode : $012D_{16}$; Info : press [↑] for Ĭ at [αINTL.2] gF1	*Characters*			
gF2	ị	Character	i ogonek	International character ị ; Fontcode : $012F_{16}$; Info : press [↑] for Ị at [αINTL.2] gF2	*Characters*			
gF3	ı	Character	i dotless	International character ı ; Fontcode : 0131_{16} ; Info : press [↑] for İ at [αINTL.2] gF3 (not UPPERcase of ı)	*Characters*			
gF4	ĺ	Character	l accute	International character ĺ ; Fontcode : $013A_{16}$; Info : press [↑] for Ĺ at [αINTL.2] gF4	*Characters*			
gF5	ľ	Character	l apostrophe	International character ľ ; Fontcode : $013E_{16}$; Info : press [↑] for Ľ at [αINTL.2] gF5	*Characters*			
gF6	ł	Character	l stoke	International character ł ; Fontcode : 0142_{16} ; Info : press [↑] for Ł at [αINTL.2] gF6	*Characters*			

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αintl	alpha international					
g-shift	ŕ	ř	ś	ş	š	ß
f-shift	õ	ö	ø	ō	ŏ	œ
unshifted	ñ	ń	ň	ò	ó	ô
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	αintl	MENU	alpha international	Lowercase international characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		αintl	
F1	ñ	Character	n tilde	International character ñ ; Fontcode : $00F1_{16}$; Info : press [↑] for Ñ at [αINTL.3] F1	*Characters*			
F2	ń	Character	n accute	International character ń ; Fontcode : 0144_{16} ; Info : press [↑] for Ń at [αINTL.3] F2	*Characters*			
F3	ň	Character	n caron	International character ň ; Fontcode : 0148_{16} ; Info : press [↑] for Ň at [αINTL.3] F3	*Characters*			
F4	ò	Character	o grave	International character ò ; Fontcode : $00F2_{16}$; Info : press [↑] for Ò at [αINTL.3] F4	*Characters*			
F5	ó	Character	o accute	International character ó ; Fontcode : $00F3_{16}$; Info : press [↑] for Ó at [αINTL.3] F5	*Characters*			
F6	ô	Character	o circumflex	International character ô ; Fontcode : $00F4_{16}$; Info : press [↑] for Ô at [αINTL.3] F6	*Characters*			
fF1	õ	Character	o tilde	International character õ ; Fontcode : $00F5_{16}$; Info : press [↑] for Õ at [αINTL.3] fF1	*Characters*			
fF2	ö	Character	o diaresis	International character ö ; Fontcode : $00F6_{16}$; Info : press [↑] for Ö at [αINTL.3] fF2	*Characters*			
fF3	ø	Character	o stroke	International character ø ; Fontcode : $00F8_{16}$; Info : press [↑] for Ø at [αINTL.3] fF3	*Characters*			
fF4	ō	Character	o macron	International character ō ; Fontcode : $014D_{16}$; Info : press [↑] for Ō at [αINTL.3] fF4	*Characters*			
fF5	ŏ	Character	o breve	International character ŏ ; Fontcode : $014F_{16}$; Info : press [↑] for Ŏ at [αINTL.3] fF5	*Characters*			
fF6	œ	Character	oe	International character œ ; Fontcode : 0153_{16} ; Info : press [↑] for Œ at [αINTL.3] fF6	*Characters*			
gF1	ŕ	Character	r accute	International character ŕ ; Fontcode : 0155_{16} ; Info : press [↑] for Ŕ at [αINTL.3] gF1	*Characters*			
gF2	ř	Character	r caron	International character ř ; Fontcode : 0159_{16} ; Info : press [↑] for Ř at [αINTL.3] gF2	*Characters*			
gF3	ś	Character	s accute	International character ś ; Fontcode : $015B_{16}$; Info : press [↑] for Ś at [αINTL.3] gF3	*Characters*			
gF4	ş	Character	s cedilla	International character ş ; Fontcode : $015F_{16}$; Info : press [↑] for Ş at [αINTL.3] gF4	*Characters*			
gF5	š	Character	s caron	International character š ; Fontcode : 0161_{16} ; Info : press [↑] for Š at [αINTL.3] gF5	*Characters*			
gF6	β	Character	sz	International character β ; Fontcode : $00DF_{16}$; Info : press [↑] for β at [αINTL.3] gF6	*Characters*			

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αintl	alpha international					
g-shift	ý	ŷ	ÿ	ź	ż	ž
f-shift	ũ	ū	ŭ	ů	ụ	ŵ
unshifted	ţ	ť	ù	ú	û	ü
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	αintl	MENU	alpha international	Lowercase international characters ; Info : Uppercase menu via [↑] ; single character selection	*Characters*		αintl	
F1	ţ	Character	t cedilla	International character ţ ; Fontcode : 0163_{16} ; Info : press [↑] for Ţ at [αINTL.4]F1	*Characters*			
F2	ť	Character	t apostrophe	International character ť ; Fontcode : 0165_{16}	*Characters*			
F3	ù	Character	u grave	International character ù ; Fontcode : $00F9_{16}$; Info : press [↑] for Ù at [αINTL.4]F3	*Characters*			
F4	ú	Character	u accute	International character ú ; Fontcode : $00FA_{16}$; Info : press [↑] for Ú at [αINTL.4]F4	*Characters*			
F5	û	Character	u circumflex	International character û ; Fontcode : $00FB_{16}$; Info : press [↑] for Û at [αINTL.4]F5	*Characters*			
F6	ü	Character	u diaresis	International character ü ; Fontcode : $00FC_{16}$; Info : press [↑] for Ü at [αINTL.4]F6	*Characters*			
fF1	ũ	Character	u tilde	International character ũ ; Fontcode : 0169_{16} ; Info : press [↑] for Ũ at [αINTL.4]fF1	*Characters*			
fF2	ū	Character	u macron	International character ū ; Fontcode : $016B_{16}$; Info : press [↑] for Ū at [αINTL.4]fF2	*Characters*			
fF3	ŭ	Character	u breve	International character ŭ ; Fontcode : $016D_{16}$; Info : press [↑] for Ŭ at [αINTL.4]fF3	*Characters*			
fF4	ů	Character	u ring	International character ů ; Fontcode : $016F_{16}$; Info : press [↑] for Ů at [αINTL.4]fF4	*Characters*			
fF5	ų	Character	u ogonek	International character ų ; Fontcode : 0173_{16} ; Info : press [↑] for Ų at [αINTL.4]fF5	*Characters*			
fF6	ŵ	Character	w circumflex	International character ŵ ; Fontcode : 0175_{16} ; Info : press [↑] for Ŵ at [αINTL.4]fF6	*Characters*			
gF1	ý	Character	y accute	International character ý ; Fontcode : $00FD_{16}$; Info : press [↑] for Ý at [αINTL.4]gF1	*Characters*			
gF2	ŷ	Character	y circumflex	International character ŷ ; Fontcode : 0177_{16} ; Info : press [↑] for Ŷ at [αINTL.4]gF2	*Characters*			
gF3	ÿ	Character	y diaresis	International character ÿ ; Fontcode : $00FF_{16}$; Info : press [↑] for Ÿ at [αINTL.4]gF3	*Characters*			
gF4	ź	Character	z accute	International character ź ; Fontcode : $017A_{16}$; Info : press [↑] for Ź at [αINTL.4]gF4	*Characters*			
gF5	ż	Character	z dot	International character ż ; Fontcode : $017C_{16}$; Info : press [↑] for Ż at [αINTL.4]gF5	*Characters*			
gF6	ž	Character	z caron	International character ž ; Fontcode : $017E_{16}$; Info : press [↑] for Ž at [αINTL.4]gF6	*Characters*			

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αMath	Alpha Math					
g-shift	\	/	÷	×	-	+
f-shift	{	[	(	)	]	}
unshifted	<	≤	=	≠	≥	>
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	<	Character	Less than	Mathematical symbol < ; Fontcode : $003C_{16}$	*Characters*			
F2	≤	Character	Less or equal than	Mathematical symbol ≤ ; Fontcode : 2264_{16}	*Characters*			
F3	=	Character	Equal	Mathematical symbol = ; Info : Fontcode : $003D_{16}$	*Mathematics and characters*			
F4	≠	Character	Not equel to	Mathematical symbol ≠ ; Fontcode : 2260_{16}	*Characters*			
F5	≥	Character	Greater or equal than	Mathematical symbol ≥ ; Fontcode : 2265_{16}	*Characters*			
F6	>	Character	Greater than	Mathematical symbol > ; Fontcode : $003E_{16}$	*Characters*			
fF1	{	Character	Left curly bracket	Mathematical symbol { ; Fontcode : $007B_{16}$	*Characters*			
fF2	[	Character	Left square bracket	Mathematical symbol [; Fontcode : $005B_{16}$	*Characters*			
fF3	(	Character	Left parenthesis	Mathematical symbol (; Fontcode : 0028_{16}	*Mathematics and characters*			
fF4	)	Character	Right parenthesis	Mathematical symbol) ; Fontcode : 0029_{16}	*Mathematics and characters*			
fF5	]	Character	Right square bracket	Mathematical symbol] ; Fontcode : $005D_{16}$	*Characters*			
fF6	}	Character	Right curly bracket	Mathematical symbol } ; Fontcode : $007D_{16}$	*Characters*			
gF1	\	Character	Back slash	Mathematical symbol \ ; Fontcode : $005C_{16}$	*Characters*			
gF2	/	Character	Slash	Mathematical symbol / ; Shortcut : alpha g[R/S] ; Info : Fontcode : $002F_{16}$	*Characters*			
gF3	÷	Character	Obelus	Mathematical symbol ÷ ; Shortcut : alpha g[÷] ; Info : Fontcode : $00F7_{16}$	*Characters*			
gF4	×	Character	Cross	Mathematical symbol × ; Shortcut : alpha g[×] ; Info : Fontcode : $00D7_{16}$	*Characters*			
gF5	-	Character	Minus	Mathematical symbol - ; Shortcut : alpha g[-] ; Info : Fontcode : $002D_{16}$	*Characters*			
gF6	+	Character	Plus	Mathematical symbol + ; Shortcut : alpha g[+] ; Info : Fontcode : $002B_{16}$	*Characters*			

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αMath	Alpha Math					
g-shift	~	≈	≃	≡	≔	±
f-shift	¬	∧	∨	⊻	$\bar{\wedge}$	$\bar{\vee}$
unshifted	^	√	∛	∜	$\overline{x}$	$\overline{y}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	^	Character	Raise to power	Mathematical symbol ^ ; Shortcut : alpha g[y^x] ; Info : Fontcode : $005E_{16}$	*Mathematics and characters*			
F2	√	Character	Square root	Mathematical symbol √ ; Fontcode : $221A_{16}$	*Mathematics and characters*			
F3	∛	Character	Cube root	Mathematical symbol ∛ ; Fontcode : $221B_{16}$	*Mathematics and characters*			
F4	∜	Character	xth root	Mathematical symbol ∜ ; Fontcode : $221C_{16}$	*Characters*			
F5	x̅	Character	x under root	Mathematical symbol x̅ ; Fontcode : $037F_{16}$	*Characters*			
F6	y̅	Character	y under root	Mathematical symbol y̅ ; Fontcode : 0232_{16}	*Characters*			
fF1	¬	Character	Not	Mathematical symbol ¬ ; Fontcode : $00AC_{16}$	*Characters*			
fF2	∧	Character	And	Mathematical symbol ∧ ; Fontcode : 2227_{16}	*Characters*			
fF3	∨	Character	Or	Mathematical symbol ∨ ; Fontcode : 2228_{16}	*Characters*			
fF4	⊻	Character	Xor	Mathematical symbol ⊻ ; Fontcode : $22BB_{16}$	*Characters*			
fF5	⊼	Character	Nand	Mathematical symbol ⊼ ; Fontcode : $22BC_{16}$	*Characters*			
fF6	⊽	Character	Nor	Mathematical symbol ⊽ ; Fontcode : $22BD_{16}$	*Characters*			
gF1	~	Character	Tilde	Mathematical symbol ~ ; Fontcode : $007E_{16}$	*Characters*			
gF2	≈	Character	Almost equal	Mathematical symbol ≈ ; Fontcode : 2248_{16}	*Characters*			
gF3	≃	Character	Asymptotically equal to	Mathematical symbol ≃ ; Fontcode : 2243_{16}	*Characters*			
gF4	≡	Character	Identical to	Mathematical symbol ≡ ; Fontcode : 2261_{16}	*Characters*			
gF5	≔	Character	Colon equals	Mathematical symbol ≔ ; Fontcode : 2254_{16}	*Characters*			
gF6	±	Character	Plus-minus	Mathematical symbol ± ; Shortcut : alpha g[CHS] ; Info : Fontcode : $00B1_{16}$	*Characters*			

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αMath	Alpha Math					
g-shift	‖	•	∘	ℯ	π	ⅈ
f-shift	|	°	′	″	⊢	⊥
unshifted	⊙	⊾	∠	∡	∢	&
Page 3	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	⊙	Character	Polar (Character)	Mathematical symbol ⊙ ; Fontcode : 2299_{16}	*Characters*			
F2	∟	Character	Right angle	Mathematical symbol ∟ ; Fontcode : $221F_{16}$	*Characters*			
F3	∠	Character	Angle	Mathematical symbol ∠ ; Fontcode : 2220_{16}	*Characters*			
F4	∡	Character	Measured angle	Mathematical symbol ∡ ; Fontcode : 2221_{16}	*Characters*			
F5	∢	Character	Spherical angle	Mathematical symbol ∢ ; Fontcode : 2222_{16}	*Characters*			
F6	&	Character	Ampersand	Mathematical symbol & ; Fontcode : 0026_{16}	*Characters*			
fF1	|	Character	Pipe ; Bar	Mathematical symbol | ; Fontcode : $007C_{16}$	*Characters*			
fF2	°	Character	Degree sign	Mathematical symbol ° ; Fontcode : $00B0_{16}$	*Characters*			
fF3	'	Character	Right single quatation mark	Mathematical symbol ' ; Fontcode : 2019_{16}	*Characters*			
fF4	"	Character	Right double quatation mark	Mathematical symbol " ; Fontcode : $201D_{16}$	*Characters*			
fF5	⊢	Character	right tack	Mathematical symbol ⊢ ; Fontcode : $22A2_{16}$	*Characters*			
fF6	⊥	Character	Perpendicular	Mathematical symbol ⊥ ; Fontcode : $22A5_{16}$	*Characters*			
gF1	||	Character	Parallel to	Mathematical symbol || ; Fontcode : 2225_{16}	*Characters*			
gF2	•	Character	Bullet	Mathematical symbol • ; Fontcode : 2219_{16}	*Characters*			
gF3	∘	Character	Ring	Mathematical symbol ∘ ; Fontcode : 2218_{16}	*Characters*			
gF4	ℯ	Character	eEuler	Mathematical symbol ℯ ; Shortcut : alpha g[LOG] ; Info : Fontcode : 2147_{16}	*Characters*			
gF5	π	Character	pi	Mathematical symbol π ; Shortcut : alpha g[R↓] ; Info : Fontcode : $03C0_{16}$; press [↑] for Π at [A...Ω.1]gF5	*Mathematics and characters*			
gF6	ⅈ	Character	Complex i	Mathematical symbol ⅈ ; Shortcut : alpha g[x^2] ; Info : Fontcode : 2148_{16}	*Characters*			

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αMath	Alpha Math					
g-shift	Ω	∂	Δ	∇	ϕ	θ
f-shift	∫	∮	∬	∯	∭	∰
unshifted	ⅈ	ℏ	<ε>	∑	∏	μ
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	ⅉ	Character	Complex j	Mathematical symbol ⅉ ; Shortcut : alpha g[DRG] ; Info : Fontcode : 2149_{16}	*Characters*			
F2	ℏ	Character	Planck / 2pi	Mathematical symbol ℏ ; Fontcode : $210F_{16}$	*Characters*			
F3	<E>	Character	Exponent sign (AIM)	Mathematical symbol <E> ; Shortcut : alpha g[EEX] ; Info : Fontcode : 2073_{16}	*Characters*			
F4	∑	Character	N-ary summation	Mathematical symbol ∑ ; Fontcode : 2211_{16}	*Characters*			
F5	∏	Character	N-ary product	Mathematical symbol ∏ ; Fontcode : $220F_{16}$	*Characters*			
F6	μ	Character	mu	Mathematical symbol μ ; Fontcode : $00B5_{16}$	*Characters*			
fF1	∫	Character	Integral	Mathematical symbol ∫ ; Fontcode : $222B_{16}$	*Mathematics and characters*			
fF2	∮	Character	Contour integral	Mathematical symbol ∮ ; Fontcode : $222E_{16}$	*Characters*			
fF3	∬	Character	Double integral	Mathematical symbol ∬ ; Fontcode : $222C_{16}$	*Characters*			
fF4	∯	Character	Surface integral	Mathematical symbol ∯ ; Fontcode : $222F_{16}$	*Characters*			
fF5	∭	Character	Triple integral	Mathematical symbol ∭ ; Fontcode : $222D_{16}$	*Characters*			
fF6	∰	Character	Volume integral	Mathematical symbol ∰ ; Fontcode : 2230_{16}	*Characters*			
gF1	Ω	Character	OMEGA	Mathematical symbol Ω ; Fontcode : $03A9_{16}$; Info : press [↓] for ω at [α...ω.2] fF3	*Characters*			
gF2	∂	Character	Partial differential	Mathematical symbol ∂ ; Fontcode : 2202_{16}	*Characters*			
gF3	Δ	Character	Increment	Mathematical symbol Δ ; Fontcode : 2206_{16}	*Characters*			
gF4	∇	Character	Nabla	Mathematical symbol ∇ ; Fontcode : 2207_{16}	*Characters*			
gF5	ϕ	Character	phi-math	Mathematical symbol ϕ ; Fontcode : $03D5_{16}$	*Characters*			
gF6	θ	Character	theta-math	Mathematical symbol θ ; Fontcode : $03B8_{16}$	*Characters*			

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αMath	Alpha Math					
g-shift	ℂ	ℐ	ℕ	ℚ	ℝ	ℤ
f-shift	∅	∪	∩	⊂	⊄	⊂
unshifted	∃	∄	∈	∉	∋	∌
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p5	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	∃	Character	There exists	Mathematical symbol ∃ ; Fontcode : 2203_{16}	*Characters*			
F2	∄	Character	There does not exists	Mathematical symbol ∄ ; Fontcode : 2204_{16}	*Characters*			
F3	∈	Character	Element of	Mathematical symbol ∈ ; Fontcode : 2208_{16}	*Characters*			
F4	∉	Character	Not an element of	Mathematical symbol ∉ ; Fontcode : 2209_{16}	*Characters*			
F5	∋	Character	Contains as member	Mathematical symbol ∋ ; Fontcode : $220B_{16}$	*Characters*			
F6	∌	Character	Does not contain as member	Mathematical symbol ∌ ; Fontcode : $220C_{16}$	*Characters*			
fF1	∅	Character	Empty set	Mathematical symbol ∅ ; Fontcode : 2205_{16}	*Characters*			
fF2	∪	Character	Union	Mathematical symbol ∪ ; Fontcode : $222A_{16}$	*Characters*			
fF3	∩	Character	Intersection	Mathematical symbol ∩ ; Fontcode : 2229_{16}	*Characters*			
fF4	⊂	Character	Subset of	Mathematical symbol ⊂ ; Fontcode : 2282_{16}	*Characters*			
fF5	⊄	Character	Not a subset of	Mathematical symbol ⊄ ; Fontcode : 2284_{16}	*Characters*			
fF6	∁	Character	Complement	Mathematical symbol ∁ ; Fontcode : 2201_{16}	*Characters*			
gF1	ℂ	Character	Complec C	Mathematical symbol ℂ ; Fontcode : 2102_{16}	*Characters*			
gF2	ℐ	Character	Irrational I	Mathematical symbol ℐ ; Fontcode : 2110_{16}	*Characters*			
gF3	ℕ	Character	Natural N	Mathematical symbol ℕ ; Fontcode : 2115_{16}	*Characters*			
gF4	ℚ	Character	Rational Q	Mathematical symbol ℚ ; Fontcode : $211A_{16}$	*Characters*			
gF5	ℝ	Character	Real R	Mathematical symbol ℝ ; Fontcode : $211D_{16}$	*Characters*			
gF6	ℤ	Character	Integer Z	Mathematical symbol ℤ ; Fontcode : 2124_{16}	*Characters*			

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αMath	Alpha Math					
g-shift	⌈	⌉	∀	-	+	∞
f-shift	|	|	⊤	-	+	∞
unshifted	⌊	⌋	¼	½	α	∞
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p6	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	⎣	Character	Matrix lower left	Mathematical symbol ⎣ ; Fontcode : $23A3_{16}$	*Characters*			
F2	⎦	Character	Matrix lower right	Mathematical symbol ⎦ ; Fontcode : $23A6_{16}$	*Characters*			
F3	¼	Character	Fraction 1/4	Mathematical symbol ¼ ; Fontcode : $00BC_{16}$	*Characters*			
F4	½	Character	Fraction 1/2	Mathematical symbol ½ ; Fontcode : $00BD_{16}$	*Characters*			
F5	∝	Character	Proportional to	Mathematical symbol ∝ ; Fontcode : $221D_{16}$	*Characters*			
F6	∞	Character	Infinity	Mathematical symbol ∞ ; Fontcode : $221E_{16}$	*Characters*			
fF1	⎢	Character	Matrix middle left	Mathematical symbol ⎢ ; Fontcode : $23A2_{16}$	*Characters*			
fF2	⎥	Character	Matrix middle right	Mathematical symbol ⎥ ; Fontcode : $23A5_{16}$	*Characters*			
fF3	ᵀ	Character	Superscript T	Mathematical symbol ᵀ ; Fontcode : $1D40_{16}$	*Characters*			
fF4	₋	Character	Subscript -	Mathematical symbol ₋ ; Fontcode : $208B_{16}$	*Characters*			
fF5	₊	Character	Subscript +	Mathematical symbol ₊ ; Fontcode : $208A_{16}$	*Characters*			
fF6	ₙ	Character	Subscript infinity	Mathematical symbol ₙ ; Fontcode : $209F_{16}$	*Characters*			
gF1	⎡	Character	Matrix upper left	Mathematical symbol ⎡ ; Fontcode : $23A1_{16}$	*Characters*			
gF2	⎤	Character	Matrix upper right	Mathematical symbol ⎤ ; Fontcode : $23A4_{16}$	*Characters*			
gF3	∀	Character	For all	Mathematical symbol ∀ ; Fontcode : $2C6F_{16}$; exported as 2200_{16}	*Characters*			
gF4	⁻	Character	Superscript -	Mathematical symbol ⁻ ; Fontcode : $216B_{16}$	*Characters*			
gF5	⁺	Character	Superscript +	Mathematical symbol ⁺ ; Fontcode : $216A_{16}$	*Characters*			
gF6	ⁿ	Character	Superscript infinity	Mathematical symbol ⁿ ; Fontcode : $209E_{16}$	*Characters*			

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αMath	Alpha Math					
g-shift				$\hat{\imath}$	$\hat{\jmath}$	$\hat{k}$
f-shift	$\hat{u}$	$\hat{v}$	$\hat{w}$	$\hat{x}$	$\hat{y}$	$\hat{z}$
unshifted	$\bar{u}$	$\bar{v}$	$\bar{w}$	$\bar{x}$	$\bar{y}$	$\bar{z}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p7	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F1	ū	Character	u macron	Mathematical symbol ū ; Fontcode : 0380_{16}	*Characters*			
F2	v̄	Character	v macron	Mathematical symbol v̄ ; Fontcode : 0381_{16}	*Characters*			
F3	w̄	Character	w macron	Mathematical symbol w̄ ; Fontcode : 0382_{16}	*Characters*			
F4	x̄	Character	x macron	Mathematical symbol x̄ ; Fontcode : 0378_{16}	*Characters*			
F5	ȳ	Character	y macron	Mathematical symbol ȳ ; Fontcode : 0233_{16}	*Characters*			
F6	z̄	Character	z macron	Mathematical symbol z̄ ; Fontcode : 0383_{16}	*Characters*			
fF1	û	Character	u circumflex	Mathematical symbol û ; Fontcode : $03A2_{16}$	*Characters*			
fF2	v̂	Character	v circumflex	Mathematical symbol v̂ ; Fontcode : $038B_{16}$	*Characters*			
fF3	ŵ	Character	w circumflex	Mathematical symbol ŵ ; Fontcode : 0175_{16} ; Info : press [↑] for Ŵ at [αINTL.4] fF6	*Characters*			
fF4	x̂	Character	x circumflex	Mathematical symbol x̂ ; Fontcode : 0379_{16}	*Characters*			
fF5	ŷ	Character	y circumflex	Mathematical symbol ŷ ; Fontcode : 0177_{16} ; Info : press [↑] for Ŷ at [αINTL.4] gF2	*Characters*			
fF6	ẑ	Character	z circumflex	Mathematical symbol ẑ ; Fontcode : $038D_{16}$	*Characters*			
gF1								
gF2								
gF3								
gF4	î	Character	i circumflex	Mathematical symbol î ; Fontcode : $00EE_{16}$; Info : press [↑] for Î at [αINTL.2] fF4	*Characters*			
gF5	ĵ	Character	j circumflex	Mathematical symbol ĵ ; Fontcode : 0135_{16}	*Characters*			
gF6	k̂	Character	k circumflex	Mathematical symbol k̂ ; Fontcode : 0137_{16}	*Characters*			

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αMisc	Alpha miscellaneous					
g-shift	¡	¿	.	,	;	:
f-shift	"	$	¢	€	£	¥
unshifted	↵	#	@	&	%	'
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F1	↵	Character	Carriage return	Special character ↵ ; Shortcut : alpha g[ENTER] ; alpha longer [ENTER] ; EIM longer [ENTER] ; Info : Fontcode : $21B5_{16}$	*Characters*			
F2	#	Character	Number sign	Special character # ; Shortcut : alpha g[LN] ; Info : Fontcode : 0023_{16}	*Number bases and characters*			
F3	@	Character	At	Special character @ ; Fontcode : 0040_{16}	*Characters*			
F4	&	Character	Ampersand	Special character & ; Fontcode : 0026_{16}	*Characters*			
F5	%	Character	Percent	Special character % ; Fontcode : 0025_{16}	*Characters*			
F6	'	Character	Apostrophe	Special character ' ; Fontcode : 0027_{16}	*Characters*			
fF1	"	Character	Quotation mark	Special character " ; Fontcode : 0022_{16}	*Characters*			
fF2	$	Character	Dollar	Special character $; Fontcode : 0024_{16}	*Characters*			
fF3	¢	Character	Cent	Special character ¢ ; Fontcode : $00A2_{16}$	*Characters*			
fF4	€	Character	Euro	Special character € ; Fontcode : $20AC_{16}$	*Characters*			
fF5	£	Character	Pound	Special character £ ; Fontcode : $00A3_{16}$	*Characters*			
fF6	¥	Character	Yen	Special character ¥ ; Fontcode : $00A5_{16}$	*Characters*			
gF1	¡	Character	Inverted exclamation mark	Special character ¡ ; Fontcode : $00A1_{16}$	*Characters*			
gF2	¿	Character	Inverted question mark	Special character ¿ ; Fontcode : $00BF_{16}$	*Characters*			
gF3	.	Character	Full stop	Special character . ; Shortcut : alpha g[.] ; Info : Fontcode : $002E_{16}$	*Characters*			
gF4	,	Character	Comma	Special character , ; Fontcode : $002C_{16}$	*Characters*			
gF5	;	Character	Semicolon	Special character ; ; Shortcut : alpha f[.] ; Info : Fontcode : $003B_{16}$	*Characters*			
gF6	:	Character	Colon	Special character : ; Shortcut : alpha f[R/S] ; Fontcode : $003A_{16}$	*Characters*			

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αMisc	Alpha miscellaneous					
g-shift	↔	⇔	⇡	⇣	⇠	⇢
f-shift	⇒	⇒	⇑	⇓	⇐	⇒
unshifted	!	?	↑	↓	←	→
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F1	!	Character	Exclamation mark	Special character ! ; Shortcut : alpha g[$^1/x$] ; Info : Fontcode : 0021_{16}	*Mathematics and characters*			
F2	?	Character	Question mark	Special character ? ; Fontcode : $003F_{16}$	*Characters*			
F3	↑	Character	Move up	Special character ↑ ; Fontcode : 2191_{16}	*Navigation and characters*			
F4	↓	Character	Move down	Special character ↓ ; Fontcode : 2193_{16}	*Navigation and characters*			
F5	←	Character	Move left	Special character ← ; Fontcode : 2190_{16}	*Navigation and characters*			
F6	→	Character	Move right	Special character → ; Fontcode : 2192_{16}	*Navigation and characters*			
fF1	➔	Character	Short right arrow	Special character ➔ ; Fontcode : $21C0_{16}$	*Characters*			
fF2	⇒	Character	Convert to xxx	Special character ⇒ ; Fontcode : $21D2_{16}$	*Characters*			
fF3	⬆	Character	Up block arrow	Special character ⬆ ; Fontcode : $2B61_{16}$	*Characters*			
fF4	⬇	Character	Down block arrow	Special character ⬇ ; Fontcode : $2B63_{16}$	*Characters*			
fF5	⬅	Character	Left block arrow	Special character ⬅ ; Fontcode : $2B60_{16}$	*Characters*			
fF6	➡	Character	Right block arrow	Special character ➡ ; Fontcode : $2B62_{16}$	*Characters*			
gF1	↔	Character	Left right arrow	Special character ↔ ; Fontcode : 2194_{16}	*Characters*			
gF2	⇔	Character	Left righr double arrow	Special character ⇔ ; Fontcode : $21D4_{16}$	*Characters*			
gF3	⇡	Character	Up arrow	Special character ⇡ ; Fontcode : $21E1_{16}$	*Characters*			
gF4	⇣	Character	Down arrow	Special character ⇣ ; Fontcode : $21E3_{16}$	*Characters*			
gF5	⇠	Character	Left arrow	Special character ⇠ ; Fontcode : $21E0_{16}$	*Characters*			
gF6	⇢	Character	Right arrow	Special character ⇢ ; Fontcode : $21E2_{16}$	*Characters*			

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αMisc	Alpha miscellaneous					
g-shift	*	~	⌛	⏲	⏱	❗
f-shift	D	T	S	√	•	*
unshifted	≷	⇕	⇧	⇩	«	»
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F1	↔	Character	Left right arrow	Special character ↔ ; Shortcut : alpha g[x↔y] ; Info : Fontcode : $21C4_{16}$	*Characters*			
F2	↕	Character	Up down arrow	Special character ↕ ; Fontcode : 2195_{16}	*Characters*			
F3	⇧	Character	Up hollow arrow	Special character ⇧ ; Fontcode : $21E7_{16}$	*Characters*			
F4	⇩	Character	Down hollow arrow	Special character ⇩ ; Fontcode : $21E9_{16}$	*Characters*			
F5	«	Character	Left French quotation mark	Special character « ; Fontcode : $00AB_{16}$	*Characters*			
F6	»	Character	Right French quotation mark	Special character » ; Fontcode : $00BB_{16}$	*Characters*			
fF1	ⅅ	Character	Date	Special character ⅅ ; Fontcode : 2145_{16}	*Characters*			
fF2	ⅆ	Character	Time	Special character ⅆ ; Fontcode : 2138_{16}	*Characters*			
fF3	§	Character	Section	Special character § ; Fontcode : $00A7_{16}$	*Characters*			
fF4	✓	Character	Check mark	Special character ✓ ; Fontcode : 2713_{16}	*Characters*			
fF5	•	Character	Bullet	Special character • ; Fontcode : 2219_{16}	*Characters*			
fF6	∗	Character	Asterisk	Special character ∗ ; Fontcode : $002A_{16}$	*Characters*			
gF1	ᵃ	Character	Superscript a	Special character ᵃ ; Fontcode : $208F_{16}$	*Characters*			
gF2	~	Character	Tilde	Special character ~ ; Fontcode : $007E_{16}$	*Characters*			
gF3	⌛	Character	Hourglass	Special character ⌛ ; Fontcode : $231B_{16}$	*Characters*			
gF4	⏲	Character	Watch	Special character ⏲ ; Fontcode : $231A_{16}$	*Characters*			
gF5	⏱	Character	Stopwatch	Special character ⏱ ; Fontcode : $23F1_{16}$	*Characters*			
gF6	❗	Character	Negative exclamation mark	Special character ❗ ; Fontcode : $242F_{16}$	*Characters*			

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αMisc	Alpha miscellaneous					
g-shift	ℓ	“	”	‾	A↕	⏻
f-shift	⚙	ψ	⊙	⊕	US	UK
unshifted	U	▯	🖶	≣	▲	▼
Page 4	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMisc_page_5.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F1	U	Character	User mode	Special character U ; Fontcode : $242C_{16}$	*Characters*			
F2	▯	Character	Battery	Special character ▯ ; Fontcode : $242A_{16}$	*Characters*			
F3	🖶	Character	Printer	Special character 🖶 ; Fontcode : 2399_{16}	*Characters*			
F4	≣	Character	List	Special character ≣ ; Fontcode : $21CC_{16}$	*Characters*			
F5	⊿	Character	BST	Special character ⊿ ; Fontcode : $21C9_{16}$	*Characters*			
F6	∇	Character	SST	Special character ∇ ; Fontcode : $21CB_{16}$	*Characters*			
fF1	♻	Character	Cyclic	Special character ♻ ; Fontcode : $267A_{16}$	*Characters*			
fF2	ψ	Character	USB symbol	Special character ψ ; Fontcode : 2434_{16}	*Characters*			
fF3	⊙	Character	Subscript sun	Special character ⊙ ; Fontcode : $229A_{16}$	*Characters*			
fF4	⊕	Character	Subscript earth	Special character ⊕ ; Fontcode : 2295_{16}	*Characters*			
fF5	US	Character	US	Special character US ; Fontcode : $242E_{16}$	*Characters*			
fF6	UK	Character	UK	Special character UK ; Fontcode : $242D_{16}$	*Characters*			
gF1	ℓ	Character	Litre	Special character ℓ ; Fontcode : 2113_{16}	*Characters*			
gF2	“	Character	Left double quatation mark	Special character “ ; Fontcode : $201C_{16}$	*Characters*			
gF3	”	Character	Right double quatation mark	Special character ” ; Fontcode : $201D_{16}$	*Characters*			
gF4	⎓	Character	DC current	Special character ⎓ ; Fontcode : 2393_{16}	*Characters*			
gF5	∿	Character	AC current	Special character ∿ ; Fontcode : $23E6_{16}$	*Characters*			
gF6	⏻	Character	Power symbol	Special character ⏻ ; Fontcode : $23FB_{16}$	*Characters*			

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αMisc	Alpha miscellaneous					
g-shift						
f-shift	⌊f	■				
unshifted	□	⊡	○	⊙	◇	◈
Page 5	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_StdNorml_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p5	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F1	□	Character	CB_OFF	Special character □ ; Fontcode : 2610_{16}	*Characters*			
F2	▣	Character	CB_ON	Special character ▣ ; Fontcode : 2612_{16}	*Characters*			
F3	○	Character	RB_OFF	Special character ○ ; Fontcode : $25EF_{16}$	*Characters*			
F4	◉	Character	RB_ON	Special character ◉ ; Fontcode : $29BF_{16}$	*Characters*			
F5	◇	Character	DIA_OFF	Special character ◇ ; Fontcode : $25C7_{16}$	*Characters*			
F6	◈	Character	DIA_ON	Special character ◈ ; Fontcode : $25C8_{16}$	*Characters*			
fF1	⏎	Character	HP42S Line Feed picture	Special character ⏎ ; Fontcode : $240A_{16}$	*Characters*			
fF2	■	Character	HP42S Small black square	Special character ■ ; Fontcode : $25AA_{16}$	*Characters*			
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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AMORT	TVM amortisation					
g-shift						HP12C ◻
f-shift						
unshifted	P1 $_{1}$	P2 $_{12}$	ΣINT	ΣPRN	BAL	NEXT
Page 1	F1	F2	F3	F4	F5	F6

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Ref 1 https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	AMORT	MENU	TVM amortisation	TVM amortisation ; Info : When menu AMORT is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM ; Ref : https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf	*Financial*		AMORT	
F1	P1 1	Command	First payment number	Set first payment number in the range (integer, 1 ≤ P1 ≤ n) ; TI : From period P1:	*Financial*		P1 1	1
F2	P2 12	Command	Last Payment number	Set last payment number in the range (integer, P1 ≤ P2 ≤ n) ; TI : To period P2:	*Financial*		P2 12	12
F3	ΣINT	Command	Sum of interest	Total interest paid across payments P1 through P2, inclusive ; TI : Σ of interest to P2 =	*Financial*		ΣINT	
F4	ΣPRN	Command	Sum of principal	Total principal paid across payments P1 through P2, inclusive ; TI : Σ of principal to P2 =	*Financial*		ΣPRN	
F5	BAL	Command	Balance	Outstanding loan balance immediately after payment P2 is applied ; TI : Balance remaining =	*Financial*		BAL	
F6	NEXT	Command	Step forward	Step the window forward : P1 ← P1 + <window size>, P2 ← P2 + <window size>	*Financial*		NXTPER	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	HP12C ◻	Setting (pgm)	HP12C standard precision	Switch on HP12C standard precision of 2 decimals ; Info : The HP12C standard precision means that PMT is rounded to 2 decimals before amortisation is computed, so the schedule matches a printed bank statement	*Financial*	HP12C	HP12C ◻	OFF

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Angle:	Angle and angular velocity conversions					
g-shift						
f-shift	deg/s ←	→ RPM	rad/s ←	→ RPM	rad/s ←	→ deg/s
unshifted	rad ←	→ deg	grad ←	→ deg	rad ←	→ grad
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_ANGLES_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Angle:	MENU	Angle and angular velocity conversions	Convert between units of angle or angular velocity ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Angular/Speed conversions*		Angle:	
F1	deg→rad (rad ←)	Function (monadic, linked)	deg to rad	Convert degree to radian (untagged) ; TI : rad:	*Angle conversions*	$CONV_{HP}$		
F2	rad→deg (→ deg)	Function (monadic, linked)	rad to deg	Convert radian to degree (untagged) ; TI : deg:	*Angle conversions*	$CONV_{HP}$		
F3	deg→grad (grad ←)	Function (monadic, linked)	deg to grad	Convert degree to gradian (untagged) ; TI : grad:	*Angle conversions*	$CONV_{HP}$		
F4	grad→deg (→ deg)	Function (monadic, linked)	grad to deg	Convert gradian to degree (untagged) ; TI : deg:	*Angle conversions*	$CONV_{HP}$		
F5	grad→rad (rad ←)	Function (monadic, linked)	grad to rad	Convert gradian to radian (untagged) ; TI : rad:	*Angle conversions*	$CONV_{HP}$		
F6	rad→grad (→ grad)	Function (monadic, linked)	rad to grad	Convert radian to gradian (untagged) ; TI : grad:	*Angle conversions*	$CONV_{HP}$		
fF1	RPM→deg/s (deg/s ←)	Function (monadic, linked)	RPM to deg/s	Convert rotation per minute to degree per second ; TI : deg/s:	*Angular/Speed conversions*	$CONV_{HP}$		
fF2	deg/s→RPM (→ RPM)	Function (monadic, linked)	deg/s to RPM	Convert degree per second to rotation per minute ; TI : RPM:	*Angular/Speed conversions*	$CONV_{HP}$		
fF3	RPM→rad/s (rad/s ←)	Function (monadic, linked)	RPM to rad/s	Convert rotation per minute to radian per second ; TI : rad/s:	*Angular/Speed conversions*	$CONV_{HP}$		
fF4	rad/s→RPM (→ RPM)	Function (monadic, linked)	rad/s to RPM	Convert radian per second to rotation per minute ; TI : RPM:	*Angular/Speed conversions*	$CONV_{HP}$		
fF5	deg/s→rad/s (rad/s ←)	Function (monadic, linked)	deg/s to rad/s	Convert degree per second to radian per second ; TI : rad/s:	*Angular/Speed conversions*	$CONV_{HP}$		
fF6	rad/s→deg/s (→ deg/s)	Function (monadic, linked)	rad/s to deg/s	Convert radian per second to degree per second ; TI : deg/s:	*Angular/Speed conversions*	$CONV_{HP}$		
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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ANGLES	Angle variables					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ANGLES	MENU	Angle variables	Auto-generated catalog of variables of the specified datatype : Angle (1.1-1.5)	*Catalog*		ANGLES	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Area:	Area conversions					
g-shift	ha ←	→ ft^2	m^2 ←	→ ft^2	km^2 ←	→ ha
f-shift	ha ←	→ $acre_{US}$	m^2 ←	→ mŬ	km^2 ←	→ nmi^2
unshifted	ha ←	→ acre	m^2 ←	→ ha	km^2 ←	→ mi^2
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_ASSESS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Area:	MENU	Area conversions	Convert between units of area ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Area conversions*		Area:	
F1	acre→ha (ha ←)	Function (monadic, linked)	acre to ha	Convert acre to hectare ; TI : ha:	*Area conversions*	$CONV_{HP}$		
F2	ha→acre (→ acre)	Function (monadic, linked)	ha to acre	Convert hectare to acre ; TI : acre:	*Area conversions*	$CONV_{HP}$		
F3	ha→m^2 (m^2 ←)	Function (monadic, linked)	ha to m^2	Convert hectare to square metre ; TI : m^2:	*Area conversions*	$CONV_{HP}$		
F4	m^2→ha (→ ha)	Function (monadic, linked)	m^2 to ha	Convert square metre to hectare ; TI : ha:	*Area conversions*	$CONV_{HP}$		
F5	mi^2→km^2 (km^2 ←)	Function (monadic, linked)	mi^2 to km^2	Convert square mile to square kilometre ; TI : km^2:	*Area conversions*	$CONV_{HP}$		
F6	km^2→mi^2 (→ mi^2)	Function (monadic, linked)	km^2 to mi^2	Convert square kilometre to square mile ; TI : mi^2:	*Area conversions*	$CONV_{HP}$		
fF1	$acre_{US}$→ha (ha ←)	Function (monadic, linked)	$acre_{US}$ to ha	Convert US acre to hectare ; TI : ha:	*Area conversions*	$CONV_{HP}$		
fF2	ha→$acre_{US}$ (→ $acre_{US}$)	Function (monadic, linked)	ha to $acre_{US}$	Convert hectare to US acre ; TI : $acre_{US}$:	*Area conversions*	$CONV_{HP}$		
fF3	mŭ→m^2 (m^2 ←)	Function (monadic, linked)	mŭ to m^2	Convert mŭ to square metre ; TI : m^2:	*Area conversions*	$CONV_{HP}$		
fF4	m^2→mŭ (→ mŭ)	Function (monadic, linked)	m^2 to mŭ	Convert square metre to mŭ ; TI : mŭ:	*Area conversions*	$CONV_{HP}$		
fF5	nmi^2→km^2 (km^2 ←)	Function (monadic, linked)	nmi^2 to km^2	Convert square nautical mile to square kilometre ; TI : km^2:	*Area conversions*	$CONV_{HP}$		
fF6	km^2→nmi^2 (→ nmi^2)	Function (monadic, linked)	km^2 to nmi^2	Convert square kilometre to square nautical mile ; TI : nmi^2:	*Area conversions*	$CONV_{HP}$		
gF1	ft^2→ha (ha ←)	Function (monadic, linked)	ft^2 to ha	Convert square foot to hectare ; TI : ha:	*Area conversions*	$CONV_{HP}$		
gF2	ha→ft^2 (→ ft^2)	Function (monadic, linked)	ha to ft^2	Convert hectare to square foot ; TI : ft^2:	*Area conversions*	$CONV_{HP}$		
gF3	ft^2→m^2 (m^2 ←)	Function (monadic, linked)	ft^2 to m^2	Convert square foot to square metre ; TI : m^2:	*Area conversions*	$CONV_{HP}$		
gF4	m^2→ft^2 (→ ft^2)	Function (monadic, linked)	m^2 to ft^2	Convert square metre to square foot ; TI : ft^2:	*Area conversions*	$CONV_{HP}$		
gF5	ha→km^2 (km^2 ←)	Function (monadic, linked)	ha to km^2	Convert hectare to square kilometre ; TI : km^2:	*Area conversions*	$CONV_{HP}$		
gF6	km^2→ha (→ ha)	Function (monadic, linked)	km^2 to ha	Convert square kilometre to hectare ; TI : ha:	*Area conversions*	$CONV_{HP}$		

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→ (TamIndirect)	Indirection					
g-shift						REG
f-shift						
unshifted		VAR	X	Y	Z	T
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	→ (TamIndirect)	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F1								
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	→ (TamIndirect)	Link
F1		
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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ASSESS	Assess					
g-shift						
f-shift						
unshifted	NXTFIT	-ZOOM$_0$				
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_AUDIO_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ASSESS	MENU (item)	Assess	Display graphical assessments of the selected regression curves	*Plotting and curve fitting*			
F1	NXTFIT	Command (cyclic, nonpgm)	Next fit	Assess next curve fitting (cyclic)	*Plotting and curve fitting*			
F2	-ZOOM$_0$	Command	Zoom out on y-axis	Decrease zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; -ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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AUDIO	Audio					
g-shift						
f-shift						VOL$_{11}$
unshifted	BEEP	TONE	BUZZ	PLAY	VOL↑$_{11}$	VOL↓$_{11}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	AUDIO	MENU	Audio	Audio commands	*Input-Output*		AUDIO	
F1	BEEP	Command	Beep	Play beep sound (4 tones)	*Input-Output*		BEEP	
F2	TONE	Command	Tone	Tone (range 0-9) ; TAM : TONE _ TamNonReg menu	*Input-Output*		TONE	
F3	BUZZ	Command (HW)	Buzzer	Play sound with frequency Y in Hz (0 = silent) and duration X in ms (max 2000) ; hardware only ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*Input-Output*		BUZZ	
F4	PLAY	Command (HW)	Play (BUZZ) sounds	Play (BUZZ) sounds using input from n×3 or n×2 matrix variable having rows : [frequency, duration, volume] (Hz, ms, volume element is optional) ; hardware only ; TAM : PLAY __ TamLabel menu ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*Input-Output*		PLAY	
F5	VOL↑11	Setting (pgm, HW)	Volume up	Set audio volume up (0-11) ; hardware only (DMCP setting) ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Input-Output*		VOL↑11	11
F6	VOL↓11	Setting (pgm, HW)	Volume down	Set audio volume down (0-11) ; hardware only (DMCP setting) ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Input-Output*		VOL↓11	11
fF1								
fF2								
fF3								
fF4								
fF5								
fF6	VOL11	Setting (pgm, HW)	Set volume	Set volume (0-11) ; hardware only (DMCP setting) ; TAM : VOL __ TamNonReg menu ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Input-Output*		VOL11	11
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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BASE	Number base					
g-shift	64-BIT ⊙	32-BIT ○	16-BIT ○	8-BIT ○	FF	BITSET
f-shift	AND	OR	XOR	NOT		BITSHFT
unshifted	HEX	DEC	OCT	BIN	#	LINT
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	BASE	MENU	Number base	Number base operations (Short integer (8.02-8.16)) ; Split screen : Displaying value of X according to setting dSI (short integer split screen lines) : 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$; Info : on BASE page 2, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ	*Number bases*		BASE	
F1	HEX	Setting (pgm)	Hexadecimal	Convert X to hexadecimal and toggle hexadecimal mode ; if KEY_{A-F} is SET, digits A-F can be entered by pressing row 2 keys ; Shortcut : #TAM [RCL] (H) ; Info : values are displayed with subscript $_{16}$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	HEX	OFF
F2	DEC	Setting (pgm)	Decimal (short integer)	Convert X to decimal (short integer) and toggle decimal (short integer) mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY_{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle ; Shortcut : #TAM [y^x] (D) ; Info : values are displayed with subscript $_{10}$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	DEC	OFF
F3	OCT	Setting (pgm)	Octal	Convert X to octal and toggle octal mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY_{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle ; Shortcut : <none> ; Info : values are displayed with subscript $_{8}$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	OCT	OFF
F4	BIN	Setting (pgm)	Binary	Convert X to binary and toggle binary mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY_{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle ; Shortcut : #TAM [$\sqrt{x}$] (B) ; Info : values are displayed with subscript $_{2}$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	BIN	OFF
F5	#	Setting (pgm, stack)	Number base	Set number base ; operates on all stack registers depending on $BASE_{HP}$; TAM : →INT __ TamNonReg menu ; #TAM shortcuts : B = BIN ; D = DEC ; ENTER = DEC ; H = HEX ; Info : SBI is shown if flag SBfrac is SET ; exit base mode by .d, →I, [.] or CLRMOD (longerpress [EXIT]) ; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	→INT	OFF
F6	LINT	Function (monadic)	Long integer	Convert to Long integer (0) ; Info : Max 1000 digits	*Integers*		LINT	
fF1	AND	Function (dyadic)	AND	Bitwise AND	*Bits and bytes*		AND	
fF2	OR	Function (dyadic)	OR	Bitwise OR	*Bits and bytes*		OR	
fF3	XOR	Function (dyadic)	XOR	Bitwise XOR (exclusive OR)	*Bits and bytes*		XOR	
fF4	NOT	Function (monadic)	NOT	Bitwise NOT	*Bits and bytes*		NOT	
fF5								
fF6	BITSHFT	MENU (item)	Bit shift functions	Activate menu BITS page 2 to access bit shift functions ; Info : Previews/OPENM as BITS↵2	*Bits and bytes*		BITS↵2	
gF1	64-BIT ⊙	Setting (pgm)	Word size 64 bits	Set word size to 64 bits, for Short integer (8.02-8.16) ; Info : <m> in SBI indicates sign mode (menu BITSET) ; SBI 64:<m> is shown if flag SBint is SET ; SBI : 64:<m>	*Number bases*	SBint	64-BIT ⊙	ON
gF2	32-BIT ○	Setting (pgm)	Word size 32 bits	Set word size to 32 bits, for Short integer (8.02-8.16) ; Info : <m> in SBI indicates sign mode (menu BITSET) ; SBI 32:<m> is shown if flag SBint is SET ; SBI : 32:<m>	*Number bases*	SBint	32-BIT ○	OFF
gF3	16-BIT ○	Setting (pgm)	Word size 16 bits	Set word size to 16 bits, for Short integer (8.02-8.16) ; Info : <m> in SBI indicates sign mode (menu BITSET) ; SBI 16:<m> is shown if flag SBint is SET ; SBI : 16:<m>	*Number bases*	SBint	16-BIT ○	OFF
gF4	8-BIT ○	Setting (pgm)	Word size 8 bits	Set word size to 8 bits, for Short integer (8.02-8.16) ; Info : <m> in SBI indicates sign mode (menu BITSET) ; SBI 8:<m> is shown if flag SBint is SET ; SBI : 8:<m>	*Number bases*	SBint	8-BIT ○	OFF
gF5	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
gF6	BITSET	MENU	Bit set functions	Bit set functions	*Bits and bytes*		BITSET	

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p1	BASE	Link
F1	HEX	
F2	DEC	
F3	OCT	
F4	BIN	
F5	#	
F6	LINT	
fF1	AND	
fF2	OR	
fF3	XOR	
fF4	NOT	
fF5		
fF6	BITSHFT	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSHFT_page_1.pdf
gF1	64-BIT ⊗	
gF2	32-BIT ○	
gF3	16-BIT ○	
gF4	8-BIT ○	
gF5	FF	
gF6	BITSET	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSET_page_1.pdf

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BASE	Number base					
g-shift	64:U ◇	32:U ◇	16:U ◇	8:U ◇	FF	BITSET
f-shift	64:2 ◇	32:2 ◇	16:2 ◇	8:2 ◇	B.SWP	W.SWP
unshifted	A	B	C	D	E	F
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BASE2_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	BASE	MENU	Number base	Number base operations (Short integer (8.02-8.16)) ; Split screen : Displaying value of X according to setting dSI (short integer split screen lines) : 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$; Info : on BASE page 2, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ	*Number bases*		BASE	
F1	A	Character	A	Character A ; Fontcode : 0041_{16}	*Numeric input and characters*			
F2	B	Character	B	Character B ; Fontcode : 0042_{16}	*Numeric input and characters*			
F3	C	Character	C	Character C ; Fontcode : 0043_{16}	*Numeric input and characters*			
F4	D	Character	D	Character D ; Fontcode : 0044_{16}	*Numeric input and characters*			
F5	E	Character	E	Character E ; Fontcode : 0045_{16}	*Numeric input and characters*			
F6	F	Character	F	Character F ; Fontcode : 0046_{16}	*Numeric input and characters*			
fF1	64:2 ◈	Setting (pgm)	Signed 64 bits	Shortcut to set word size to 64 bits signed (ISM = 2) -- 2's complement ; Info : SBI 64:2 is shown if flag SBint is SET ; SBI : 64:2	*Number bases*	SBint		ON
fF2	32:2 ◇	Setting (pgm)	Signed 32 bits	Shortcut to set word size to 32 bits signed (ISM = 2) -- 2's complement ; Info : SBI 32:2 is shown if flag SBint is SET ; SBI : 32:2	*Number bases*	SBint		OFF
fF3	16:2 ◇	Setting (pgm)	Signed 16 bits	Shortcut to set word size to 16 bits signed (ISM = 2) -- 2's complement ; Info : SBI 16:2 is shown if flag SBint is SET ; SBI : 16:2	*Number bases*	SBint		OFF
fF4	8:2 ◇	Setting (pgm)	Signed 8 bits	Shortcut to set word size to 8 bits signed (ISM = 2) -- 2's complement ; Info : SBI 8:2 is shown if flag SBint is SET ; SBI : 8:2	*Number bases*	SBint		OFF
fF5	B.SWP	Function (monadic)	Byte swap	Swap bytes	*Number bases*		B.SWP	
fF6	W.SWP	Function (monadic)	Word swap	Swap words	*Number bases*		W.SWP	
gF1	64:u ◇	Setting (pgm)	Unsigned 64 bits	Shortcut to set word size to 64 bits unsigned (ISM = 0) -- Unsigned ; Info : SBI 64:u is shown if flag SBint is SET ; SBI : 64:u	*Number bases*	SBint		OFF
gF2	32:u ◇	Setting (pgm)	Unsigned 32 bits	Shortcut to set word size to 32 bits unsigned (ISM = 0) -- Unsigned ; Info : SBI 32:u is shown if flag SBint is SET ; SBI : 32:u	*Number bases*	SBint		OFF
gF3	16:u ◇	Setting (pgm)	Unsigned 16 bits	Shortcut to set word size to 16 bits unsigned (ISM = 0) -- Unsigned ; Info : SBI 16:u is shown if flag SBint is SET ; SBI : 16:u	*Number bases*	SBint		OFF
gF4	8:u ◇	Setting (pgm)	Unsigned 8 bits	Shortcut to set word size to 8 bits unsigned (ISM = 0) -- Unsigned ; Info : SBI 8:u is shown if flag SBint is SET ; SBI : 8:u	*Number bases*	SBint		OFF
gF5	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
gF6	BITSET	MENU	Bit set functions	Bit set functions	*Bits and bytes*		BITSET	

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p2	BASE	Link
F1	A	
F2	B	
F3	C	
F4	D	
F5	E	
F6	F	
f F1	64:2 ◈	
f F2	32:2 ◇	
f F3	16:2 ◇	
f F4	8:2 ◇	
f F5	B.SWP	
f F6	W.SWP	
g F1	64:u ◇	
g F2	32:u ◇	
g F3	16:u ◇	
g F4	8:u ◇	
g F5	FF	
g F6	BITSET	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSET_page_1.pdf

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BASE2	Number base (2)					
g-shift	BASE	SLn	SRn	BIN	DEC	HEX
f-shift	AND	OR	XOR	NOT	IDIV	MOD
unshifted	A	B	C	D	E	F
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	BASE2	MENU	Number base (2)	Alternative menu for number base operations (Short integer (8.02-8.16)) ; Split screen : Displaying value of X according to setting dSI (short integer split screen lines) : 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Number bases*		BASE2	
F1	A	Character	A	Character A ; Fontcode : 0041_{16}	*Numeric input and characters*			
F2	B	Character	B	Character B ; Fontcode : 0042_{16}	*Numeric input and characters*			
F3	C	Character	C	Character C ; Fontcode : 0043_{16}	*Numeric input and characters*			
F4	D	Character	D	Character D ; Fontcode : 0044_{16}	*Numeric input and characters*			
F5	E	Character	E	Character E ; Fontcode : 0045_{16}	*Numeric input and characters*			
F6	F	Character	F	Character F ; Fontcode : 0046_{16}	*Numeric input and characters*			
fF1	AND	Function (dyadic)	AND	Bitwise AND	*Bits and bytes*		AND	
fF2	OR	Function (dyadic)	OR	Bitwise OR	*Bits and bytes*		OR	
fF3	XOR	Function (dyadic)	XOR	Bitwise XOR (exclusive OR)	*Bits and bytes*		XOR	
fF4	NOT	Function (monadic)	NOT	Bitwise NOT	*Bits and bytes*		NOT	
fF5	IDIV	Function (dyadic)	Integer divide	Integer divide	*Integers*		IDIV	
fF6	MOD	Function (dyadic)	Modulo	Y modulo X	*Mathematics*		MOD	
gF1	BASE	MENU	Number base	Number base operations (Short integer (8.02-8.16)) ; Split screen : Displaying value of X according to setting dSI (short integer split screen lines) : 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$; Info : on BASE page 2, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ	*Number bases*	BCD	BASE	
gF2	SLn	Function (monadic)	Shift Left	Shift Left with number of bits (trailing input) ; TAM : SLn __ TamNonReg menu	*Number bases*		SLn	
gF3	SRn	Function (monadic)	Shift Right	Shift Right with number of bits (trailing input) ; TAM : SRn __ TamNonReg menu	*Number bases*		SRn	
gF4	BIN	Setting (pgm)	Binary	Convert X to binary and toggle binary mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY_{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle ; Shortcut : #TAM [$\sqrt{x}$] (B) ; Info : values are displayed with subscript $_2$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	BIN	OFF
gF5	DEC	Setting (pgm)	Decimal (short integer)	Convert X to decimal (short integer) and toggle decimal (short integer) mode ; entering digits A-F switches the calculator to hexadecimal mode ; when KEY_{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle ; Shortcut : #TAM [y^x] (D) ; Info : values are displayed with subscript $_{10}$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	DEC	OFF
gF6	HEX	Setting (pgm)	Hexadecimal	Convert X to hexadecimal and toggle hexadecimal mode ; if KEY_{A-F} is SET, digits A-F can be entered by pressing row 2 keys ; Shortcut : #TAM [RCL] (H) ; Info : values are displayed with subscript $_{16}$; SBI : #BASE ; #KEY_{A-F}	*Number bases*	KEY_{A-F}	HEX	OFF

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p1	BASE2	Link
F1	A	
F2	B	
F3	C	
F4	D	
F5	E	
F6	F	
fF1	AND	
fF2	OR	
fF3	XOR	
fF4	NOT	
fF5	IDIV	
fF6	MOD	
gF1	BASE	https://47calc.com/doc/R47/Menus/R47v0_Menu_BASE_page_1.pdf
gF2	SLn	
gF3	SRn	
gF4	BIN	
gF5	DEC	
gF6	HEX	

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BASE2	Number base (2)					
g-shift	BASE	#B	SB	CB	BS?	BITSET
f-shift	LEAD.0 ◻	OVERFL ◻	CARRY ◻			BITSHFT
unshifted	A	B	C	D	E	F
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Binom_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	BASE2	MENU	Number base (2)	Alternative menu for number base operations (Short integer (8.02-8.16)) ; Split screen : Displaying value of X according to setting dSI (short integer split screen lines) : 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Number bases*		BASE2	
F1	A	Character	A	Character A ; Fontcode : 0041_{16}	*Numeric input and characters*			
F2	B	Character	B	Character B ; Fontcode : 0042_{16}	*Numeric input and characters*			
F3	C	Character	C	Character C ; Fontcode : 0043_{16}	*Numeric input and characters*			
F4	D	Character	D	Character D ; Fontcode : 0044_{16}	*Numeric input and characters*			
F5	E	Character	E	Character E ; Fontcode : 0045_{16}	*Numeric input and characters*			
F6	F	Character	F	Character F ; Fontcode : 0046_{16}	*Numeric input and characters*			
fF1	LEAD.0 ◻	Setting	Leading zeros	Switch on leading zeros (shortint bases 2, 4, 8, 16) ; not programmable - in PEM, use flag LEAD.0	*Display*	LEAD.0	LEAD.0 ◻	OFF
fF2	OVERFL ◻	Setting	Overflow	Switch on overflow ; not programmable - in PEM, use flag OVERFL ; Info : SBI ° is shown if flag SBoc is SET ; SBI : °	*Bits and bytes*	OVERFL	OVERFL ◻	OFF
fF3	CARRY ◻	Setting	Carry (bit)	Switch on carry (bit) ; not programmable - in PEM, use flag CARRY ; Info : SBI $_c$ is shown if flag SBoc is SET ; SBI : $_c$	*Bits and bytes*	CARRY	CARRY ◻	OFF
fF4								
fF5								
fF6	BITSHFT	MENU (item)	Bit shift functions	Activate menu BITS page 2 to access bit shift functions ; Info : Previews/OPENM as BITS↲2	*Bits and bytes*		BITS↲2	
gF1	BASE	MENU	Number base	Number base operations (Short integer (8.02-8.16)) ; Split screen : Displaying value of X according to setting dSI (short integer split screen lines) : 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$; Info : on BASE page 2, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ	*Number bases*	BCD	BASE	
gF2	#B	Function (monadic)	Get number of bits set	Get number of bits set	*Number bases*		#B	
gF3	SB	Function (monadic)	Set bit	Set bit n ; TAM : SB __ TamNonReg menu	*Number bases*		SB	
gF4	CB	Function (monadic)	Clear bit	Clear bit n ; TAM : CB __ TamNonReg menu	*Number bases*		CB	
gF5	BS?	Command (logical)	Bit set?	Test bit n is set ; TAM : BS? __ TamNonReg menu	*Number bases*		BS?	
gF6	BITSET	MENU	Bit set functions	Bit set functions	*Bits and bytes*		BITSET	

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p2	BASE2	Link
F1	A	
F2	B	
F3	C	
F4	D	
F5	E	
F6	F	
fF1	LEAD.0 ◻	
fF2	OVERFL ◻	
fF3	CARRY ◻	
fF4		
fF5		
fF6	BITSHFT	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSHFT_page_1.pdf
gF1	BASE	https://47calc.com/doc/R47/Menus/R47v0_Menu_BASE_page_1.pdf
gF2	#B	
gF3	SB	
gF4	CB	
gF5	BS?	
gF6	BITSET	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSET_page_1.pdf

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Binom:	Binomial & Negative binomial distribution					
g-shift	STO$_P$ p	STO$_N$ n				
f-shift	NBin$_p$		NBin$_{\triangle}$	NBin$_{\triangle}$		NBin^{-1}
unshifted	Binom$_p$		Binom$_{\triangle}$	Binom$_{\triangle}$		Binom^{-1}
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BITS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Binom:	MENU	Binomial & Negative binomial distribution	Binomial & Negative binomial probability distribution (discrete) ; TI : RegP = p = ; RegN = n =	*Probability (int)*		Binom:	
F1	$Binom_p$	Function (monadic)	Binomial pmf	Binomial probability mass function	*Probability (int)*		$Binom_p$	
F2								
F3	$Binom_{\triangle}$	Function (monadic)	Binomial cdf (lower)	Binomial cumulative distribution (lower tail)	*Probability (int)*		$Binom_{\triangle}$	
F4	$Binom_{\triangle}$	Function (monadic)	Binomial cdf (upper)	Binomial cumulative distribution (upper tail)	*Probability (int)*		$Binom_{\triangle}$	
F5								
F6	$Binom^{-1}$	Function (monadic)	Binomial qf (inverse)	Binomial inverse cumulative distribution (quantile)	*Probability (int)*		$Binom^{-1}$	
fF1	$NBin_p$	Function (monadic)	Negative binomial pmf	Negative binomial probability mass function	*Probability (int)*		$NBin_p$	
fF2								
fF3	$NBin_{\triangle}$	Function (monadic)	Negative binomial cdf (lower)	Negative binomial cumulative distribution (lower tail)	*Probability (int)*		$NBin_{\triangle}$	
fF4	$NBin_{\triangle}$	Function (monadic)	Negative binomial cdf (upper)	Negative binomial cumulative distribution (upper tail)	*Probability (int)*		$NBin_{\triangle}$	
fF5								
fF6	$NBin^{-1}$	Function (monadic)	Negative binomial qf (inverse)	Negative binomial inverse cumulative distribution (quantile)	*Probability (int)*		$NBin^{-1}$	
gF1	STO_P p	Command	Store p in P	Store parameter p : probability in register P ; Split screen : RegP = p =	*Probability (int)*			
gF2	STO_N n	Command	Store n in N	Store parameter n : number of samples in register N ; Split screen : RegN = n =	*Probability (int)*			
gF3								
gF4								
gF5								
gF6								

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BITS	Bitwise functions					
g-shift	SB	BS?	BC?	CB	FF	FB
f-shift	NAND	NOR	XNOR	#B	ZIP	UNZIP
unshifted	AND	OR	XOR	NOT	MASKL	MASKR
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BITS_page_2.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	BITS	MENU	Bitwise functions	Bitwise functions	*Bits and bytes*		BITS	
F1	AND	Function (dyadic)	AND	Bitwise AND	*Bits and bytes*		AND	
F2	OR	Function (dyadic)	OR	Bitwise OR	*Bits and bytes*		OR	
F3	XOR	Function (dyadic)	XOR	Bitwise XOR (exclusive OR)	*Bits and bytes*		XOR	
F4	NOT	Function (monadic)	NOT	Bitwise NOT	*Bits and bytes*		NOT	
F5	MASKL	Function (monadic)	Left bit mask	Set left n bits to use as mask ; TAM : MASKL __ TamNonReg menu	*Bits and bytes*		MASKL	
F6	MASKR	Function (monadic)	Right bit mask	Set right n bits to use as mask ; TAM : MASKR __ TamNonReg menu	*Bits and bytes*		MASKR	
fF1	NAND	Function (dyadic)	Not AND	Logical not AND (bitwise)	*Bits and bytes*		NAND	
fF2	NOR	Function (dyadic)	NOR	Logical not OR (bitwise)	*Bits and bytes*		NOR	
fF3	XNOR	Function (dyadic)	Exclusive NOR	Logical exclusive NOR (bitwise)	*Bits and bytes*		XNOR	
fF4	#B	Function (monadic)	Get number of bits set	Get number of bits set	*Number bases*		#B	
fF5	ZIP	Function (dyadic)	Zip	Interleave (zip) bits of Y and X, starting with most significant bit of Y	*Bits and bytes*		ZIP	
fF6	UNZIP	Function (monadic)	Unzip	De-interleave (unzip) bits of X into Y and X, using most significant bit for Y	*Bits and bytes*		UNZIP	
gF1	SB	Function (monadic)	Set bit	Set bit n ; TAM : SB __ TamNonReg menu	*Number bases*		SB	
gF2	BS?	Command (logical)	Bit set?	Test bit n is set ; TAM : BS? __ TamNonReg menu	*Number bases*		BS?	
gF3	BC?	Command (logical)	Bit clear?	Test bit n is clear ; TAM : BC? __ TamNonReg menu	*Bits and bytes*		BC?	
gF4	CB	Function (monadic)	Clear bit	Clear bit n ; TAM : CB __ TamNonReg menu	*Number bases*		CB	
gF5	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
gF6	FB	Function (monadic)	Flip bit	Flip bit n ; TAM : FB __ TamNonReg menu	*Bits and bytes*		FB	

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BITS	Bitwise functions					
g-shift	MIRROR	ASRn	LJ	RJ	FF	BITSET
f-shift	SLn	SRn	RLn	RRn	RLCn	RRCn
unshifted	SL	SR	RL	RR	RLC	RRC
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSET_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	BITS	MENU	Bitwise functions	Bitwise functions	*Bits and bytes*		BITS	
F1	SL	Function (monadic)	Shift Left (1)	Shortcut to Shift Left (1 bit)	*Number bases*		SL	
F2	SR	Function (monadic)	Shift Right (1)	Shortcut to Shift Right (1 bit)	*Number bases*		SR	
F3	RL	Function (monadic)	Rotate Left (1)	Shortcut to Rotate Left (1 bit)	*Bits and bytes*		RL	
F4	RR	Function (monadic)	Rotate right (1)	Shortcut to Rotate right (1 bit)	*Bits and bytes*		RR	
F5	RLC	Function (monadic)	Rotate Left through Carry (1)	Shortcut to Rotate Left through Carry (1 bit)	*Bits and bytes*		RLC	
F6	RRC	Function (monadic)	Rotate Right through Carry (1)	Shortcut to Rotate Right through Carry (1 bit)	*Bits and bytes*		RRC	
fF1	SLn	Function (monadic)	Shift Left	Shift Left with number of bits (trailing input) ; TAM : SLn __ TamNonReg menu	*Number bases*		SLn	
fF2	SRn	Function (monadic)	Shift Right	Shift Right with number of bits (trailing input) ; TAM : SRn __ TamNonReg menu	*Number bases*		SRn	
fF3	RLn	Function (monadic)	Rotate Left	Rotate Left with number of bits (trailing input) ; TAM : RLn __ TamNonReg menu	*Bits and bytes*		RLn	
fF4	RRn	Function (monadic)	Rotate right	Rotate right with number of bits (trailing input) ; TAM : RRn __ TamNonReg menu	*Bits and bytes*		RRn	
fF5	RLCn	Function (monadic)	Rotate Left through Carry	Rotate Left through Carry with number of bits (trailing input) ; TAM : RLCn __ TamNonReg menu	*Bits and bytes*		RLCn	
fF6	RRCn	Function (monadic)	Rotate Right through Carry	Rotate Right through Carry with number of bits (trailing input) ; TAM : RRCn __ TamNonReg menu	*Bits and bytes*		RRCn	
gF1	MIRROR	Function (monadic)	Mirror bits	Flip bits	*Bits and bytes*		MIRROR	
gF2	ASRn	Function (monadic)	Arithmetic Shift Right	Arithmetic Shift Right with number of bits, preserving the sign of signed integers (trailing input) ; TAM : ASRn __ TamNonReg menu	*Bits and bytes*		ASRn	
gF3	LJ	Function (monadic)	Left justify	Left justify (within word size) ; returns shift in X and result in Y	*Bits and bytes*		LJ	
gF4	RJ	Function (monadic)	Right justify	Right justify (within word size) ; returns shift in X and result in Y	*Bits and bytes*		RJ	
gF5	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
gF6	BITSET	MENU	Bit set functions	Bit set functions	*Bits and bytes*		BITSET	

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p2	BITS	Link
F1	SL	
F2	SR	
F3	RL	
F4	RR	
F5	RLC	
F6	RRC	
f F1	SLn	
f F2	SRn	
f F3	RLn	
f F4	RRn	
f F5	RLCn	
f F6	RRCn	
g F1	MIRROR	
g F2	ASRn	
g F3	LJ	
g F4	RJ	
g F5	FF	
g F6	BITSET	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSET_page_1.pdf

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BITSET	Bit set functions					
g-shift	9CMPL ○	10CMPL ○	BCDUNS ⊙	BCD □	FF	$BASE_{HP}$ ⊡
f-shift	1COMPL ○	2COMPL ⊙	UNSIGN ○	SIGNMT ○		$WSIZE_{64}$
unshifted	A	B	C	D	E	F
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSHFT_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	BITSET	MENU	Bit set functions	Bit set functions	*Bits and bytes*		BITSET	
F1	A	Character	A	Character A ; Fontcode : 0041_{16}	*Numeric input and characters*			
F2	B	Character	B	Character B ; Fontcode : 0042_{16}	*Numeric input and characters*			
F3	C	Character	C	Character C ; Fontcode : 0043_{16}	*Numeric input and characters*			
F4	D	Character	D	Character D ; Fontcode : 0044_{16}	*Numeric input and characters*			
F5	E	Character	E	Character E ; Fontcode : 0045_{16}	*Numeric input and characters*			
F6	F	Character	F	Character F ; Fontcode : 0046_{16}	*Numeric input and characters*			
fF1	1COMPL ○	Setting (pgm)	1's complement	Set 1's complement mode for Long integer (ISM = 1) ; Info : <w> in SBI indicates word size (menu BITSET) ; SBI <w>:1 is shown if flag SBint is SET ; SBI : <w>:1	*Bits and bytes*	SBint	1COMPL ○	OFF
fF2	2COMPL ◉	Setting (pgm)	2's complement	Set 2's complement mode for Long integer (ISM = 2) ; Info : <w> in SBI indicates word size (menu BITSET) ; SBI <w>:2 is shown if flag SBint is SET ; SBI : <w>:2	*Bits and bytes*	SBint	2COMPL ◉	ON
fF3	UNSIGN ○	Setting (pgm)	Unsigned	Set unsigned mode for Short integer (ISM = 0) ; Info : <w> in SBI indicates word size (menu BITSET) ; SBI <w>:u is shown if flag SBint is SET ; SBI : <w>:u	*Bits and bytes*	SBint	UNSIGN ○	OFF
fF4	SIGNMT ○	Setting (pgm)	Sign and mantissa	Set sign and mantissa mode for Short integer (ISM = -1) ; Info : <w> in SBI indicates word size (menu BITSET) ; SBI <w>:s is shown if flag SBint is SET ; SBI : <w>:s	*Bits and bytes*	SBint	SIGNMT ○	OFF
fF5								
fF6	$WSIZE_{64}$	Setting (pgm)	Set word size	Set word size in bits, for Short integer (8.02-8.16) ; TAM : WSIZE __ TamNonReg menu menu ; Info : <m> in SBI indicates sign mode (menu BITSET) ; SBI 64:<m> is shown if flag SBint is SET ; SBI : 64:<m>	*Bits and bytes*	SBint	$WSIZE_{64}$	64
gF1	9CMPL ○	Setting (pgm)	BCD 9's complement	Set BCD 9's complement display of Long integer in #BASE Mode ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD	9CMPL ○	OFF
gF2	10CMPL ○	Setting (pgm)	BCD 10's complement	Set BCD 10's complement display of Long integer in #BASE Mode ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD	10CMPL ○	OFF
gF3	BCDUNS ◉	Setting (pgm)	BCD unsigned	Set BCD unsigned display of Long integer in #BASE Mode ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD	BCDUNS ◉	ON
gF4	BCD □	Setting	Binary coded decimal	Switch on binary coded decimal (BCD) display of Long integer in #BASE Mode ; not programmable - in PEM, use flag BCD ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD	BCD □	OFF
gF5	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
gF6	$BASE_{HP}$ ▣	Setting	Classic (HP) style base	Switch on applying number base to the whole stack ; not programmable - in PEM, use flag $BASE_{HP}$; Info : Shortint values only	*Number bases*	$BASE_{HP}$	$BASE_{HP}$ ▣	ON

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BITSHFT (BITS)	Bit shift functions					
g-shift	MIRROR	ASRn	LJ	RJ	FF	BITSET
f-shift	SLn	SRn	RLn	RRn	RLCn	RRCn
unshifted	SL	SR	RL	RR	RLC	RRC
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	BITSHFT (BITS)	MENU (item)	Bit shift functions	Activate menu BITS page 2 to access bit shift functions ; Info : Previews/OPENM as BITS↲2	*Bits and bytes*		BITS↲2	
F1	SL	Function (monadic)	Shift Left (1)	Shortcut to Shift Left (1 bit)	*Number bases*		SL	
F2	SR	Function (monadic)	Shift Right (1)	Shortcut to Shift Right (1 bit)	*Number bases*		SR	
F3	RL	Function (monadic)	Rotate Left (1)	Shortcut to Rotate Left (1 bit)	*Bits and bytes*		RL	
F4	RR	Function (monadic)	Rotate right (1)	Shortcut to Rotate right (1 bit)	*Bits and bytes*		RR	
F5	RLC	Function (monadic)	Rotate Left through Carry (1)	Shortcut to Rotate Left through Carry (1 bit)	*Bits and bytes*		RLC	
F6	RRC	Function (monadic)	Rotate Right through Carry (1)	Shortcut to Rotate Right through Carry (1 bit)	*Bits and bytes*		RRC	
fF1	SLn	Function (monadic)	Shift Left	Shift Left with number of bits (trailing input) ; TAM : SLn __ TamNonReg menu	*Number bases*		SLn	
fF2	SRn	Function (monadic)	Shift Right	Shift Right with number of bits (trailing input) ; TAM : SRn __ TamNonReg menu	*Number bases*		SRn	
fF3	RLn	Function (monadic)	Rotate Left	Rotate Left with number of bits (trailing input) ; TAM : RLn __ TamNonReg menu	*Bits and bytes*		RLn	
fF4	RRn	Function (monadic)	Rotate right	Rotate right with number of bits (trailing input) ; TAM : RRn __ TamNonReg menu	*Bits and bytes*		RRn	
fF5	RLCn	Function (monadic)	Rotate Left through Carry	Rotate Left through Carry with number of bits (trailing input) ; TAM : RLCn __ TamNonReg menu	*Bits and bytes*		RLCn	
fF6	RRCn	Function (monadic)	Rotate Right through Carry	Rotate Right through Carry with number of bits (trailing input) ; TAM : RRCn __ TamNonReg menu	*Bits and bytes*		RRCn	
gF1	MIRROR	Function (monadic)	Mirror bits	Flip bits	*Bits and bytes*		MIRROR	
gF2	ASRn	Function (monadic)	Arithmetic Shift Right	Arithmetic Shift Right with number of bits, preserving the sign of signed integers (trailing input) ; TAM : ASRn __ TamNonReg menu	*Bits and bytes*		ASRn	
gF3	LJ	Function (monadic)	Left justify	Left justify (within word size) ; returns shift in X and result in Y	*Bits and bytes*		LJ	
gF4	RJ	Function (monadic)	Right justify	Right justify (within word size) ; returns shift in X and result in Y	*Bits and bytes*		RJ	
gF5	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
gF6	BITSET	MENU	Bit set functions	Bit set functions	*Bits and bytes*		BITSET	

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p1	BITSHFT (BITS)	Link
F1	SL	
F2	SR	
F3	RL	
F4	RR	
F5	RLC	
F6	RRC	
fF1	SLn	
fF2	SRn	
fF3	RLn	
fF4	RRn	
fF5	RLCn	
fF6	RRCn	
gF1	MIRROR	
gF2	ASRn	
gF3	LJ	
gF4	RJ	
gF5	FF	
gF6	BITSET	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITSET_page_1.pdf

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BLUE47	Access blue functions					
g-shift	a b/c	#	.ms	.d	LBL	RTN
f-shift	∡	Δ%	$\sqrt[x]{y}$	i	→R	→P
unshifted	|x|	CPX	STK	TRG	EXP	↶
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	BLUE47	MENU	Access blue functions	Access all functions of the DM42-layout g-shift keyboard (blue) and a few of the f-shift keyboard ; Info : Assigned to calculator function SETUP (f[0]) in layout DM42	*Keyboard*		BLUE47	
F1	|x|	Function (monadic)	Magnitude	Magnitude (absolute value) of Complex number	*Complex numbers*		|x|	
F2	CPX	MENU	Complex functions	Complex functions ; Ref : https://47calc.com/doc/Application%20Notes/AN0001_C47_R47_JM_Complex_number_engineering_example.pdf	*Complex numbers*		CPX	
F3	STK	MENU	Stack	Stack functions	*Stack*		STK	
F4	TRG	MENU	Trigonometry	Trigonometry functions ; Info : C47 menu TRG is replaced by TRG_R47 ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMS-HMS.pdf	*Trigonometry*		TRG	
F5	EXP	MENU	Exponential	Exponential functions	*Mathematics*		EXP	
F6	↶	Command (nonpgm)	Undo	Restore complete stack, LASTx, STATS and system flags ; Info : Error 128 -- Undo failed: likely no memory -- may be raised	*Stack*		UNDO	
fF1	∡	Function (monadic)	Argument (angle)	Argument (angle) of Complex number	*Complex numbers*		∡	
fF2	Δ%	Function (dyadic)	Delta percent	Delta percentage from Y to X, keeping Y on stack -- see Formula_DELTAPC.png : https://47calc.com/doc/Images/Formula_DELTAPC.png ; TI : Δ% :	*Financial*		Δ%	
fF3	$\sqrt[x]{y}$	Function (dyadic)	xth root	Xth root of Y	*Mathematics*		$\sqrt[x]{y}$	
fF4	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
fF5	→R	Function (monadic, dyadic)	To rectangular	Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $→RECT_{hp}$ or $→RECT_{cx}$ is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] $[\ v_1\ v_2\ ]$; 3D rectangular vector : [ijk] $[\ v_1\ v_2\ v_3\ ]$	*Complex and coordinates*	RP_{HP}	→RECT	
fF6	→P	Function (monadic, dyadic)	To polar	Transform rectangular to polar coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to polar notation (monadic) and set POLAR tag ; TI : r = ; θ = (POLAR) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $→POL_{hp}$ or $→POL_{cx}$ is stored ; for a 3D vector in X, function →POLAR (→P) cycles through →SPH, then →CYL ; vector display depends on flag 3Dxyz, for 2D polar vector : $[r\theta_{ij}]$ $[\ v_1\ v_2\ ]^P$; 3D spherical vector : $[\rho\theta_{ij}\phi_k]_M$ $[\ v_1\ v_2\ v_3\ ]^S$; 3D cylindrical vector : $[r\theta_{ij}k]$ $[\ v_1\ v_2\ v_3\ ]^C$	*Complex and coordinates*	RP_{HP}	→POLAR	
gF1	a b/c	Setting (cyclic, pgm, stack)	Fractions modes	Set and cycle fractions modes : proper (mixed), improper fractions (denominator determined by DMX, DENFIX, DENANY) ; or fractional approximations including irrationals ; exit fractions mode via .d (g[y^x]) ; starts in mode last used or as set by flags PROPFR, FRACT and IRFRAC ; When FRCYC is SET full cycle is available, when CLEAR, flag PROPFR is excluded (used as is) and OFF state is included in cycle ; Shortcut : <a> [.] <b> [.] <c> ; Info : IRFRAC and FRACT are linked (both cannot be SET at the same time) ; SBI ×I or ·I indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ, π^{-2}, π^{-1}, $\sqrt{\pi}$, π, π^2, e^{-2}, e^{-1}, e and e^2 (with tolerance 10^{-24}) ; Prefix ≈ + <approximation> ; multiplication symbol SET for displaying multiplication symbol × ; SBI is shown if flag SBfrac is SET ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Fractions.pdf ; SBI : a^b/n ; $^b/n$; [+≈] ; a^b/c×I ; $^b/c$×I ; [+≈]	*Fractions*	FRACT		OFF
gF2	#	Setting (pgm, stack)	Number base	Set number base ; operates on all stack registers depending on $BASE_{HP}$; TAM : →INT __ TamNonReg menu ; #TAM shortcuts : B = BIN ; D = DEC ; ENTER = DEC ; H = HEX ; Info : SBI is shown if flag SBfrac is SET ; exit base mode by .d, →I, [.] or CLRMOD (longerpress [EXIT]) ; SBI : #BASE ; $\#KEY_{A-F}$	*Number bases*	KEY_{A-F}	→INT	OFF

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF3	.ms	Function (monadic, cyclic)	Minutes & seconds	Convert sexagesimal format input sequence or decimal stack value to hh:mm:ss hours or dd°mm'ss" degrees (cyclic) ; Info : NIM input treated as sexagesimal (hh/dd.mmss) format ; stack input treated as decimal value	*Time/angle conversions*		.ms	
gF4	.d	Function (monadic)	Decimal (Real) or Date	Convert to decimal (Real) or date value ; untag (ADM) angle ; clear Fractions Mode, #BASE Mode ; convert angles / Times / Dates to Real ; convert NIM input to Date (according to CLK date format settings and implied conversion set by YY ; convert Complex number with zero imaginary part to Real ; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM) ; when editing short integers, key .d removes the base (Normal Mode and PEM) ; in PEM, .d registers as →REAL ; TI : decimal h: or yyyy.mmdd: ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Reals*	FRACT		
gF5	LBL	Command (PEM)	Label	Create global or local label ; create global label by pressing key α (f[XEQ]) and entering the name, which will be displayed as '<label>' ; local labels only exist within the scope of the program ; they are numeric : 01-99, single letter : a-l or {A}-{E}, {F}, {G}-{L} ; or created as local named labels, by pressing button : ([TamLabel.1]F3), then button α ([TamLocalLabel.1]F3) or key α (f[XEQ]) and entering the name, which will be displayed as :<label>: ; maximum label length is : 7 characters ; TAM : LBL __ TamLabel menu ; Info : LBL + TAM [XEQ] to enter global LBL '_ TamAlpha menu ; LBL + button : on [TamLabel.1]F3 to enter LBL :__ TamLocalLabel menu to create local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter LBL :_ TamAlpha menu) ; note that a label may be used multiple times in a program ; local labels are searched forwards from the GTO or XEQ command, before global labels, which are searched from the start of program memory	*Programming*		LBL	
gF6	RTN	Command (PEM)	Return	Return from subroutine to calling program	*Programming*		RTN	

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p1	BLUE47	Link
F1	|x|	
F2	CPX	https://47calc.com/doc/R47/Menus/R47v0_Menu_CPX_page_1.pdf
F3	STK	https://47calc.com/doc/R47/Menus/R47v0_Menu_STK_page_1.pdf
F4	TRG	https://47calc.com/doc/R47/Menus/R47v0_Menu_TRG_page_1.pdf
F5	EXP	https://47calc.com/doc/R47/Menus/R47v0_Menu_EXP_page_1.pdf
F6	↶	
f F1	∡	
f F2	Δ%	
f F3	$\sqrt[x]{y}$	
f F4	i	
f F5	→R	
f F6	→P	
g F1	a b/c	
g F2	#	
g F3	.ms	
g F4	.d	
g F5	LBL	
g F6	RTN	

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BLUE47	Access blue functions					
g-shift						
f-shift	SNAP	STOPW	INFO	TEST	CNST	
unshifted	→I	VIEW	USER ◻			
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	BLUE47	MENU	Access blue functions	Access all functions of the DM42-layout g-shift keyboard (blue) and a few of the f-shift keyboard ; Info : Assigned to calculator function SETUP (f[0]) in layout DM42	*Keyboard*		BLUE47	
F1	→I	Function (monadic, cyclic)	To integer	Convert to Long integer (0), Short integer (8.02-8.16) (cyclic, max 1000 digits) ; Info : Short integer indicated by subscript$_{10}$; can show TI: Ovrfl<0: or Ovrfl>64 bits : which can be abbreviated as OF, indicating overflow condition	*Integers*		→I	
F2	VIEW	Command	View	View register or variable (with preceding TI) ; TAM : VIEW __ Tam menu ; Info : if 🖶ACT is SET, VIEW will print when executed from the keyboard in MAN, NORM or TRACE ; in Program Entry Mode, 🖶EN must be SET as well ; if 🖶ACT is CLEAR and 🖶EN is SET, VIEW halts execution (R/S)	*Status*		VIEW	
F3	USER ◻	Setting	USER mode	Switch on USER mode ; not programmable - in PEM, use flag USER ; Info : To assign USER to a key or button, use ASN (g[DRG]) and spell the name as 'USER' ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf ; SBI : 🅥	*Customisation*	USER		OFF
F4								
F5								
F6								
fF1	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
fF2	STOPW	App	Stopwatch	Stopwatch with running time, counter and countdown (playing BEEP after running down) ; SBI : ⏱	*Time functions*	RUNTIM	STOPW	
fF3	INFO	MENU	Information	System information and some information about the value in the X-register	*Information*		INFO	
fF4	TEST	MENU	Testing	Testing functions	*Programming*		TEST	
fF5	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p2	BLUE47	Link
F1	→I	
F2	VIEW	
F3	USER ◻	
F4		
F5		
F6		
fF1	SNAP	
fF2	STOPW	
fF3	INFO	https://47calc.com/doc/R47/Menus/R47v0_Menu_INFO_page_1.pdf
fF4	TEST	https://47calc.com/doc/R47/Menus/R47v0_Menu_TEST_page_1.pdf
fF5	CNST	https://47calc.com/doc/R47/Menus/R47v0_Menu_CNST_page_1.pdf
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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BLUE47	Access blue functions					
g-shift	REGS	HOME	FIN	X.FN	PLOT	
f-shift	FLGS	BITS	CLK	REAL	INTS	
unshifted		KEYS	α.FN	LOOP	I/O	
Page 3	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BLUE47_page_2.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CASHFL_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	BLUE47	MENU	Access blue functions	Access all functions of the DM42-layout g-shift keyboard (blue) and a few of the f-shift keyboard ; Info : Assigned to calculator function SETUP (f[0]) in layout DM42	*Keyboard*		BLUE47	
F1								
F2	KEYS	MENU	Keys	Layouts, ribbons and special key assignments ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Keyboards_side_by_side.pdf	*Customisation*		KEYS	
F3	α.FN	MENU	Alpha functions	Alpha (text string) functions	*Text functions*		α.FN	
F4	LOOP	MENU	Looping	Looping (programming) functions	*Programming*		LOOP	
F5	I/O	MENU	Input/Output	I/O functions (read/load, write/save, export program, in-export registers, SNAP, audio, print)	*Input-Output*		I/O	
F6								
fF1	FLGS	Browser	Flag browser	Browse status pages (flags 00-99, lettered flags, status overview, system flags) ; Info : Press [EXIT] to exit Flag browser and browse using [↑] and [↓] ; browser STATUS in menu FLAG shows the same status pages in a different order ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf	*Status*		FLGS	
fF2	BITS	MENU	Bitwise functions	Bitwise functions	*Bits and bytes*		BITS	
fF3	CLK	MENU	Clock	Clock functions, including setting date and time and julian day numbers (astronomy) ; Info : Use TDISP to set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Time functions*		CLK	
fF4	REAL	MENU	Real	Functions on ℝeal numbers and ℂomplex numbers	*Reals*		REAL	
fF5	INTS	MENU	Integers	Short integer functions	*Integers*		INTS	
fF6								
gF1	REGS	Browser	Register browser	Browse all registers ; Shortcut : [.] : Switch register/variable view,[R/S] : Switch contents/storage view,[RCL] : Recall bottom item,[↑], [↓], , 00..99 : Navigate, [EXIT] : Exit Register browser ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Status*		REGS	
gF2	HOME	MENU	HOME	User menu to quickly access user selected menus and functions ; all buttons are user assignable ('riveted' look) ; initially populated for basic scitech options ; reset using HOME.R ; Shortcut : longpress [<f>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is indicated by the white keyboard label «HOME»)	*Customisation*		HOME	
gF3	FIN	MENU	Financial	Financial calculations including time value of money (TVM) and TVM cash flow ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Formulas.pdf	*Financial*		FIN	
gF4	X.FN	MENU	Extended functions	Extended functions (Bessel, Bernoulli, Gamma, Elliptical, Orthogonal, etcetera) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Prime_numbers.pdf	*Mathematics*		X.FN	
gF5	PLOT	MENU	Plotting	Plotting and summation functions ; Info : When SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting and summation*		PLOT	
gF6								

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p3	BLUE47	Link
F1		
F2	KEYS	https://47calc.com/doc/R47/Menus/R47v0_Menu_KEYS_page_1.pdf
F3	α.FN	https://47calc.com/doc/R47/Menus/R47v0_Menu_alpha-FN_page_1.pdf
F4	LOOP	https://47calc.com/doc/R47/Menus/R47v0_Menu_LOOP_page_1.pdf
F5	I/O	https://47calc.com/doc/R47/Menus/R47v0_Menu_I-O_page_1.pdf
F6		
fF1	FLGS	
fF2	BITS	https://47calc.com/doc/R47/Menus/R47v0_Menu_BITS_page_1.pdf
fF3	CLK	https://47calc.com/doc/R47/Menus/R47v0_Menu_CLK_page_1.pdf
fF4	REAL	https://47calc.com/doc/R47/Menus/R47v0_Menu_REAL_page_1.pdf
fF5	INTS	https://47calc.com/doc/R47/Menus/R47v0_Menu_INTS_page_1.pdf
fF6		
gF1	REGS	
gF2	HOME	https://47calc.com/doc/R47/Menus/R47v0_Menu_HOME_page_1.pdf
gF3	FIN	https://47calc.com/doc/R47/Menus/R47v0_Menu_FIN_page_1.pdf
gF4	X.FN	https://47calc.com/doc/R47/Menus/R47v0_Menu_X-FN_page_1.pdf
gF5	PLOT	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLOT_page_1.pdf
gF6		

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~~CASHFL~~	TVM cash flow					
g-shift						
f-shift						
unshifted						
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_BLUE47_page_3.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CAT_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	~~CASHFL~~	MENU (strike)	TVM cash flow	TVM cash flow ; Info : When menu CASHFL is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM	*Financial*		~~CASHFL~~	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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CAT	Catalog (alpha)					
g-shift						
f-shift						
unshifted	Myα	A...Ω	αMath	αMisc	αINTL	KEYMAP
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CAT_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CAT_EQN_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CAT	MENU	Catalog (alpha)	Catalog of items available in Alpha Input Mode ; Info : CAT [ALPHA] is available on keyboard alpha f[+]	*Catalog*		CATα	
F1	Myα	MENU	MyAlpha	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R ; Shortcut : alpha long [EXIT] ; EIM long [EXIT] ; alpha long [<g>] (because KEY.LP is SET ; also available in alpha mode of PEM)	*Customisation*		Myα	
F2	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F3	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F4	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F5	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F6	KEYMAP	Browser	Keyboard map	Browse keyboard map (default USER mode) ; also showing special NORMAL hotkey assignment from menu ▫ KEY ; if KEYMAP is activated when in Alpha Input Mode or Equation Input Mode, the alpha keyboard mappings are shown only (default NORMAL mode, starting with alpha g-shift) ; Info : Press and hold key [.] to view USER or NORMAL (STD) keys ; browse using [↑] and [↓] ; press [EXIT] to exit Keyboard map ; Ref : https://47calc.com/doc/R47/Reference/R47v0_KEYMAP.pdf	*Catalog*		KEYMAP	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	CAT	Link
F1	Myα	https://47calc.com/doc/R47/Menus/R47v0_Menu_MyAlpha_page_1.pdf
F2	A...Ω	https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_1.pdf
F3	αMath	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMATH_page_1.pdf
F4	αMisc	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMisc_page_1.pdf
F5	αINTL	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaINTL_page_1.pdf
F6	KEYMAP	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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CAT	Catalog (equation)					
g-shift						
f-shift						
unshifted	FCNS	CNST	CHARS			KEYMAP
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CAT_ALPHA_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Cauch_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CAT	MENU	Catalog (equation)	Catalog of items available in Equation Input Mode ; Info : CAT [EQN] is available on keyboard f[+] in EIM	*Catalog*		CATe	
F1	FCNS	MENU (ASM)	Functions (equation)	Catalog of all calculator functions available in Equation Input Mode ; Info : Type characters 1-2 to search	*Catalog*		FCNSe	
F2	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F3	CHARS	MENU	Characters	Access to all character submenus (Myα ; A...Ω/α...ω ; αMath ; αMisc ; αINTL/αintl)	*Catalog*		CHARS	
F4								
F5								
F6	KEYMAP	Browser	Keyboard map	Browse keyboard map (default USER mode) ; also showing special NORMAL hotkey assignment from menu ◻ KEY ; if KEYMAP is activated when in Alpha Input Mode or Equation Input Mode, the alpha keyboard mappings are shown only (default NORMAL mode, starting with alpha g-shift) ; Info : Press and hold key [.] to view USER or NORMAL (STD) keys ; browse using [↑] and [↓] ; press [EXIT] to exit Keyboard map ; Ref : https://47calc.com/doc/R47/Reference/R47v0_KEYMAP.pdf	*Catalog*		KEYMAP	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	CAT	Link
F1	FCNS	https://47calc.com/doc/R47/Menus/R47v0_Menu_FCNS_EQN_page_1.pdf
F2	CNST	https://47calc.com/doc/R47/Menus/R47v0_Menu_CNST_page_1.pdf
F3	CHARS	https://47calc.com/doc/R47/Menus/R47v0_Menu_CHARS_page_1.pdf
F4		
F5		
F6	KEYMAP	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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CAT	Catalog					
g-shift						
f-shift						KEYMAP
unshifted	FCNS	CNST	CHARS	PROGS	VARS	MENUS
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Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CASHFL_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CAT_ALPHA_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CAT	MENU	Catalog	Catalog of all items (functions, characters, programs, variables, menus) ; Info : Press [EXIT] to exit catalogs	*Catalog*		CATALOG	
F1	FCNS	MENU (ASM)	Functions	Catalog of all calculator functions ; Info : Type characters 1-2 to search ; Ref : https://47calc.com/doc/R47/Reference/R47v0_CAT-FCNS.pdf	*Catalog*		FCNS	
F2	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F3	CHARS	MENU	Characters	Access to all character submenus (Myα ; A...Ω/α...ω ; αMath ; αMisc ; αINTL/αintl)	*Catalog*		CHARS	
F4	PROGS	MENU (ASM)	Programs	Auto-generated catalog of programs	*Catalog*		PROGS	
F5	VARS	MENU	Variables	Auto-generated variable catalogs	*Catalog*		VARS	
F6	MENUS	MENU (ASM)	Menus	Catalog of all menus (including user defined menus) ; Info : Type characters 1-2 to search ; Ref : https://47calc.com/doc/R47/Reference/R47v0_CAT-MENUS.pdf	*Catalog*		MENUS	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6	KEYMAP	Browser	Keyboard map	Browse keyboard map (default USER mode) ; also showing special NORMAL hotkey assignment from menu ◻ KEY ; if KEYMAP is activated when in Alpha Input Mode or Equation Input Mode, the alpha keyboard mappings are shown only (default NORMAL mode, starting with alpha g-shift) ; Info : Press and hold key [.] to view USER or NORMAL (STD) keys ; browse using [↑] and [↓] ; press [EXIT] to exit Keyboard map ; Ref : https://47calc.com/doc/R47/Reference/R47v0_KEYMAP.pdf	*Catalog*		KEYMAP	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	CAT	Link
F1	FCNS	https://47calc.com/doc/R47/Menus/R47v0_Menu_FCNS_page_1.pdf
F2	CNST	https://47calc.com/doc/R47/Menus/R47v0_Menu_CNST_page_1.pdf
F3	CHARS	https://47calc.com/doc/R47/Menus/R47v0_Menu_CHARS_page_1.pdf
F4	PROGS	https://47calc.com/doc/R47/Menus/R47v0_Menu_PROGS_page_1.pdf
F5	VARS	https://47calc.com/doc/R47/Menus/R47v0_Menu_VARS_page_1.pdf
F6	MENUS	https://47calc.com/doc/R47/Menus/R47v0_Menu_MENUS_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6	KEYMAP	
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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Cauch:	Cauchy-Lorentz distribution					
g-shift	STO_M x_0	STO_S γ				
f-shift						
unshifted	$Cauch_p$		$Cauch_{\measuredangle}$	$Cauch_{\measuredangle}$		$Cauch^{-1}$
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Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CAT_EQN_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CENTRL_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Cauch:	MENU	Cauchy-Lorentz distribution	Cauchy-Lorentz probability distribution (continuous) ; TI : RegM = x_0 = ; RegS = γ =	*Probability (real)*		Cauch:	
F1	$Cauch_p$	Function (monadic)	Cauchy pdf	Cauchy probability density function	*Probability (real)*		$Cauch_p$	
F2								
F3	$Cauch_{\triangle}$	Function (monadic)	Cauchy cdf (lower)	Cauchy cumulative distribution (lower tail)	*Probability (real)*		$Cauch_{\triangle}$	
F4	$Cauch_{\triangle}$	Function (monadic)	Cauchy cdf (upper)	Cauchy cumulative distribution (upper tail)	*Probability (real)*		$Cauch_{\triangle}$	
F5								
F6	$Cauch^{-1}$	Function (monadic)	Cauchy qf (inverse)	Cauchy inverse cumulative distribution (quantile)	*Probability (real)*		$Cauch^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M x_0	Command	Store x_0 in M	Store parameter x_0 : location in register M ; Split screen : RegM = x_0 =	*Probability (real)*			
gF2	STO_S γ	Command	Store γ in S	Store parameter γ : scale in register S ; Split screen : RegS = γ =	*Probability (real)*			
gF3								
gF4								
gF5								
gF6								

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CENTRL (SCATR)	(Plot) Central					
g-shift						
f-shift						
unshifted	CENTRL	s_{mi}				
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Cauch_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CFLG_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CENTRL (SCATR)	Command (submnu)	(Plot) Central	Orthogonal curve fit and show parameters, requires 30 data pairs ; Info : Opens the graph mode and (re)starts menu SCATR	*Measurement*		CENTRL	
F1	CENTRL	Command (submnu)	(Plot) Central	Orthogonal curve fit and show parameters, requires 30 data pairs ; Info : Opens the graph mode and (re)starts menu SCATR	*Measurement*		CENTRL	
F2	s_{mi}	Command	Precision	Precision of measuring instrument investigated, requires 30 data pairs -- see https://blog.minitab.com/en/real-world-quality-improvement/orthogonal-regression-testing-the-equivalence-of-instruments ; TI : s_{mi} =	*Measurement*		s_{mi}	
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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CFLG (SYS.FL)	Configuration flags					
g-shift	$CONV_{HP}$ ■	$CONV_{US}$ □	CPXj □	CPXmul □	CPXRES ■	DENANY □
f-shift	AUTOFF ■	AUTXEQ □	$BASE_{HP}$ ■	BCD □	BOLD □	CARRY □
unshifted	1024^n □	3DPHYS □	3Dxyz □	ALPHA □	ALP.IN □	$ASLIFT_1$
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	1024^n ◻	Flag	Binary prefixes	SET for binary prefixes in UNIT display mode ; CLEAR for decimal prefixes in UNIT display mode ; Info : Binary prefixes designate powers of 1024, applicable to long integers (will be indicated by ℤ:) and reals in UNIT display mode	*Numeric input*	1024^n		CLEAR
F2	3DPHYS ◻	Flag	Physics or Math	SET for Physics conventions in spherical polar vectors ; CLEAR for Math conventions in spherical polar vectors ; Info : The notation convention is indicated by the TI subscript of the spherical polar vector : $_P$ for Physics, $_M$ for Math (determines ordering of vector elements, works on whole stack)	*Vector operations*	3DPHYS		CLEAR
F3	3Dxyz ◻	Flag	xyz or ijk vector display	SET for xyz (rθz) display of vectors ; CLEAR for ijk (rθk) display of vectors ; Info : Indicated by TI subscript of vector elements : $_{xyz}$ or $_{ijk}$	*Vector operations*	3Dxyz		CLEAR
F4	ALPHA ◻	Flag	Alpha Input Mode	SET for alpha input mode ; CLEAR for alpha input mode inactive ; SBI : A ; a ; *N*	*Text input*	ALPHA		CLEAR
F5	ALP.IN ◻	Flag	Alpha Entry	SET for alpha entry ; CLEAR for alpha entry inactive	*Text input*	ALP.IN		CLEAR
F6	$ASLIFT_1$	Flag (system)	Automatic Stack Lift	SET for automatic stack lift ; CLEAR for automatic stack lift inactive ; Info : SBI is SIM only ; SBI : SL	*Stack*	ASLIFT		SET
fF1	AUTOFF ◼	Flag	Automatic shutdown	SET for automatic shutdown ; CLEAR for automatic shutdown inactive ; Info : Automatic shutdown delay is 10 m	*System*	AUTOFF		SET
fF2	AUTXEQ ◻	Flag	Auto execute program	SET for auto execute program ; CLEAR for auto execute program inactive ; Info : Automatically starts program when calculator turns on	*Programming*	AUTXEQ		CLEAR
fF3	$BASE_{HP}$ ◼	Flag	Classic (HP) style base	SET for applying number base to the whole stack ; CLEAR for applyng number base to X only ; Info : Shortint values only	*Number bases*	$BASE_{HP}$		SET
fF4	BCD ◻	Flag	Binary coded decimal	SET for binary coded decimal (BCD) display of Long integer in #BASE Mode ; CLEAR for binary coded decimal display inactive ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD		CLEAR
fF5	BOLD ◻	Flag	Bold font mode	SET for bold font mode ; CLEAR for regular font mode	*User interface*	BOLD		CLEAR
fF6	CARRY ◻	Flag	Carry (bit)	SET for carry (bit) ; CLEAR for carry (bit) inactive ; Info : SBI $_c$ is shown if flag SBoc is SET ; SBI : $_c$	*Bits and bytes*	CARRY		CLEAR
gF1	$CONV_{HP}$ ◼	Flag	Classic (HP) conversions	SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons	*Unit conversions*	$CONV_{HP}$		SET
gF2	$CONV_{US}$ ◻	Flag	US or UK units	SET for US unit preference ; CLEAR for UK unit preference	*Unit conversions*	$CONV_{US}$		CLEAR
gF3	CPX*j* ◻	Flag	Complex *j*	SET for displaying *j* as the imaginary number ; CLEAR for displaying *i* as the imaginary number ; Info : *i* or *j* displayed in stack and on soft buttons	*Complex numbers*	CPX*j*		CLEAR
gF4	CPXmul ◻	Flag	Complex multiplier	SET for displaying ℂomplex multiplier ; CLEAR for not displaying ℂomplex multiplier ; Info : If CLEAR, trailing *i* or *j* is used ; complex multiplier is set by MULT×	*Complex numbers*	CPXmul		CLEAR
gF5	CPXRES ◼	Flag	Complex results	SET for ℂomplex results ; CLEAR for Real results only ; Info : CPXRES is auto-set when entering complex input ; SBI ℂ ; R is shown if flag SBcr is SET ; SBI : ℂ ; R	*Complex numbers*	CPXRES		SET
gF6	DENANY ◻	Flag	Denominator any	SET for any denominator (up to value set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMXX)) in fraction display mode ; CLEAR for fixed denominator in fraction display mode ; Info : DENANY and DENFIX are linked (both cannot be SET at the same time) ; SBI [+×] is shown if flag SBfrac is SET ; SBI : [+×]	*Fractions*	DENANY		CLEAR

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CFLG (SYS.FL)	Configuration flags					
g-shift	FRCYC ☐	GROW ☐	g.2Tp ☒	HOMEb ☐	HOME$_f^g$ ☒	HP12C ☐
f-shift	eRPN ☒	fg.FUL ☒	fg.GR ☐	fg.LIM ☐	FRACT ☐	FRCSRN ☐
unshifted	DENFIX ☐	dLrgLI ☒	DMY$_0$	dZ.0 ☐	ENDPMT$_1$	ENGOVR ☐
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	DENFIX ☐	Flag	Denominator fixed	SET for fixed denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] f F5 (DMXX)) in fraction display mode ; CLEAR for any denominator in fraction display mode ; Info : DENFIX and DENANY are linked (both cannot be SET at the same time) ; SBI [+f] is shown if flag SBfrac is SET ; SBI : [+f]	*Fractions*	DENFIX		CLEAR
F2	dLrgLI ▣	Flag	Large Long integers display	SET for (large) Long integers to always display in large text ; CLEAR for (large) Long integers to display in small text ; Info : dLrgLI is overruled by dZ.0	*Display*	dLrgLI		SET
F3	DMY_0	Flag (system)	Day.month.year	SET for DD.MM.YYYY display mode ; CLEAR for DD.MM.YYYY display mode inactive ; Format : DD.MM.YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : DD.MM.YYYY	*Display*	DMY		CLEAR
F4	dZ.0 ☐	Flag	Display Long integers as Real	SET for displaying Long integers as Real ; CLEAR for not displaying Long integers as Real ; Info : dZ.0 overrules dLrgLI ; Prefix : Z : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "Z:" even if dZ.0 is CLEAR	*Integers*	dZ.0		CLEAR
F5	$ENDPMT_1$	Flag (system)	TVM end payments	SET for TVM end payments ; CLEAR for TVM begin payments ; Info : SBI END ; BEG is shown if flag SBtvm is SET ; SBI : END ; BEG	*Financial*	ENDPMT		SET
F6	ENGOVR ☐	Flag	Engineering/Scientific display large Real numbers	SET for displaying large Real numbers in engineering notation ; CLEAR for displaying large Real numbers in scientific notation	*Display*	ENGOVR		CLEAR
f F1	eRPN ▣	Flag	Entry RPN mode	SET for interactive Entry RPN mode ; CLEAR for interactive Entry RPN mode inactive ; Info : If eRPN is SET, in Numeric Input Mode, ENTER pushes the input value onto the stack, and if CLEAR, then it also duplicates X to Y ; without input or in Program Entry Mode, ENTER always duplicates X to Y ; only if eRPN is CLEAR, automatic stack lift is disabled after ENTER ; stack size SBI (8 or 4) is displayed in normal font if eRPN is SET and inverted if CLEAR ; SBI 8 or 4 is shown if flag SBss is SET ; SBI : 8 or 4	*Stack*	eRPN		SET
f F2	fg.FUL ▣	Flag	Menu f,g-highlighting Full	SET for menu f,g-highlighting full ; CLEAR for menu f,g-highlighting full inactive ; Info : fg.FUL and fg.LIM are linked (both cannot be SET at the same time)	*User interface*	fg.FUL		SET
f F3	fg.GR ☐	Flag	Menu f,g-highlighting Grey	SET for menu f,g-highlighting grey ; CLEAR for menu f,g-highlighting grey inactive	*User interface*	fg.GR		CLEAR
f F4	fg.LIM ☐	Flag	Menu f,g-highlighting Limited	SET for menu f,g-highlighting limited ; CLEAR for menu f,g-highlighting limited inactive ; Info : fg.LIM and fg.FUL are linked (both cannot be SET at the same time)	*User interface*	fg.LIM		CLEAR
f F5	FRACT ☐	Flag	Fractions mode	SET for fractions mode ; CLEAR for fractions mode inactive ; Info : FRACT and IRFRAC are linked (both cannot be SET at the same time) ; /n or /max denotes maximum denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] f F5 (DMXX)) ; prefixes < and > may be shown as needed for rational fractions ; also see flag IRFRAC ; SBI ≈ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]) ; SBI : a^b/n ; $^b/n$; [+≈]	*Fractions*	FRACT		CLEAR
f F6	FRCSRN ☐	Flag	Fraction show register name	SET for displaying register name in fractions mode ; CLEAR for not displaying register name in fractions mode ; Prefix : x, y, z, t < or = or > or ≈	*Fractions*	FRCSRN		CLEAR
g F1	FRCYC ☐	Flag	Fraction mode full cycle	SET for full cycle on key a b/c (g [.]) ; CLEAR for limited cycle on key a b/c (g [.]) ; Info : When FRCYC is SET full cycle is available, when CLEAR, flag PROPFR is excluded (used as is) and OFF state is included in cycle	*Fractions*	FRCYC		CLEAR
g F2	GROW ☐	Flag	Grow (matrix edit)	SET for grow (matrix edit) ; CLEAR for wrap (matrix edit) ; Info : SBI is shown if flag SBmx is SET ; SBI : wrap ; grow	*Matrix operations*	GROW		CLEAR
g F3	g.2Tp ▣	Flag	Double tap function keys	SET for double tap function keys for g-shift ; CLEAR for double tap function keys inactive ; Info : Blocked for navigation FN-keys (arrows) in editors	*User interface*	g.2Tp		SET
g F4	HOMEb ☐	Flag	HOME menu shown	SET for HOME menu shown ; CLEAR for HOME menu not shown ; Info : HOMEb and MyMb are linked (both cannot be SET at the same time) ; applies when all menus are exited using EXIT	*Customisation*	HOMEb		CLEAR

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF5	HOME$_f^g$ ▣	Flag	HOME menu f/g shortcut	SET for HOME menu activated by triple and longerpress f/g-shift ; CLEAR for HOME menu f/g shortcut inactive ; Info : HOME$_f^g$ and MyM$_f^g$ are linked (both cannot be SET at the same time) ; HOME$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	HOME$_f^g$		SET
gF6	HP12C ◻	Flag	HP12C standard precision	SET for HP12C standard precision of 2 decimals ; CLEAR for full R47 accuracy ; Info : The HP12C standard precision means that PMT is rounded to 2 decimals before amortisation is computed, so the schedule matches a printed bank statement	*Financial*	HP12C		CLEAR

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CFLG (SYS.FL)	Configuration flags					
g-shift	MyMb ▣	MyM_F^g ◻	NUM ◻	NUM.IN ◻	OVERFL ◻	PFX.All ◻
f-shift	LEAD.0 ◻	$LOWBAT_0$	MDY_0	MNUp1 ▣	MONIT ▣	MULT× ▣
unshifted	IGN1ER ◻	$INTING_0$	IRFRAC ◻	$IRFR_0$	KEY_{A-F} ▣	KEY.LP ▣
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	IGN1ER ☐	Flag	Ignore one error	SET for calculator ignoring next error ; CLEAR for calculator not ignoring error(s) ; Info : IGN1ER is cleared subsequently	*Programming*	IGN1ER		CLEAR
F2	$INTING_0$	Flag (system)	Integrator running	SET for integrator running ; CLEAR for integrator not running	*Integrator*	INTING		CLEAR
F3	IRFRAC ☐	Flag	Irrational fractions mode	SET for irrational fractions mode ; CLEAR for irrational fractions mode inactive ; IRFRAC gives fractional results only if a simple fraction exists ; on battery power, matrices and vectors are ignored to prevent heavy calculations ; Info : IRFRAC and FRACT are linked (both cannot be SET at the same time) ; SBI ×I or ·I indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ, π^{-2}, π^{-1}, $\sqrt{\pi}$, π, π^2, e^{-2}, e^{-1}, e and e^2 (with tolerance 10^{-24}) ; Prefix ≈ + <approximation> ; multiplication symbol SET for displaying multiplication symbol × ; CLEAR for displaying multiplication symbol · or SET for displaying multiplication symbol × ; CLEAR for displaying multiplication symbol · according to flag MULT× ; SBI ≈ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]) ; SBI : a^b/c×I ; $^b/c$×I ; [+≈]	*Fractions*	IRFRAC		CLEAR
F4	$IRFR_0$	Flag (system)	Irrational fractions mode preferred	SET for irrational fractions mode preferred ; CLEAR for irrational fractions mode not preferred ; Info : IRFR is SET by IRFRAC and CLEARed by FRACT to preserve state when toggling fraction modes using a b/c and .d	*Fractions*	IRFR		CLEAR
F5	KEY_{A-F} ▣	Flag	A-F keys	SET for row 2 keys to enter digits A-F in #BASE Mode ; CLEAR for row 2 keys to work normally ; Info : Entering digits A-F switches the calculator to hexadecimal mode ; when KEY_{A-F} is SET, the respective digit is included in the row 2 key's longpress preview cycle ; SBI : #KEY_{A-F}	*Number bases*	KEY_{A-F}		SET
F6	KEY.LP ▣	Flag	Longpress f and g shortcuts	SET for longpress shortcuts for f-shift and g-shift keys ; CLEAR for longpress f and g shortcuts inactive ; Info : KEY.LP pertains to R47v0 f g layout and R47v2 f^g g layout only and also enables longpress assignment to f-shift and g-shift keys	*User interface*	KEY.LP		SET
fF1	LEAD.0 ☐	Flag	Leading zeros	SET for leading zeros (shortint bases 2, 4, 8, 16) ; CLEAR for no leading zeros (shortint bases 2, 4, 8, 16)	*Display*	LEAD.0		CLEAR
fF2	$LOWBAT_0$	Flag (system)	Low Battery	SET for low battery voltage ; CLEAR for no low battery voltage ; Info : SBI 🪫 is shown if flag SBbatV is SET ; SBI : 🪫	*System*	LOWBAT		CLEAR
fF3	MDY_0	Flag (system)	Month/day/year	SET for MM/DD/YYYY display mode ; CLEAR for MM/DD/YYYY display mode inactive ; Format : MM/DD/YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : MM/DD/YYYY	*Display*	MDY		CLEAR
fF4	MNUp1 ▣	Flag	Menu opens on p1	SET for menu opens on p1 ; CLEAR for menu opens on page last used	*User interface*	MNUp1		SET
fF5	MONIT ▣	Flag	Iteration monitoring	SET for displaying iteration status ; CLEAR for not displaying iteration status ; Info : Pertains to executing programmable sums, solvers and integrator	*Status*	MONIT		SET
fF6	MULT× ▣	Flag	Multiplication symbol	SET for displaying multiplication symbol × ; CLEAR for displaying multiplication symbol · ; Info : Multiplication symbol is used in exponential and complex notation ; symbol may be displayed in annunciator(s) related to FRACT settings	*Display*	MULT×		SET
gF1	MyMb ▣	Flag	MyMenu shown	SET for MyMenu shown ; CLEAR for MyMenu not shown ; Info : MyMb and HOMEb are linked (both cannot be SET at the same time) ; applies when all menus are exited using EXIT	*Customisation*	MyMb		SET
gF2	MyM_f^g ☐	Flag	MyMenu f/g shortcut	SET for MyMenu activated by triple and longerpress f/g-shift ; CLEAR for MyMenu f/g shortcut inactive ; Info : MyM_f^g and $HOME_f^g$ are linked (both cannot be SET at the same time) ; MyM_f^g pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	MyM_f^g		CLEAR
gF3	NUM ☐	Flag	Numlock	SET for numlock ; CLEAR for numlock inactive ; SBI : *N*	*Numeric input*	NUM		CLEAR
gF4	NUM.IN ☐	Flag	Numeric entry	SET for numeric entry ; CLEAR for numeric entry inactive	*Numeric input*	NUM.IN		CLEAR

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF5	OVERFL ◻	Flag	Overflow	SET for overflow ; CLEAR for no overflow ; Info : SBI ° is shown if flag SBoc is SET ; SBI : °	*Bits and bytes*	OVERFL		CLEAR
gF6	PFX.All ◻	Flag	Show all SI prefixes	SET for showing full range of SI prefixes in UNIT display mode ; CLEAR for showing limited range of SI prefixes in UNIT display mode ; Info : Full range is 10^{-30} to 10^{30} ; limited range is 10^{-15} to 10^{15} ; not applicable when flag 1024^n is SET ; Ref : https://47calc.com/doc/R47/Reference/R47v0_UNIT_prefix.pdf	*Plotting*	PFX.All		CLEAR

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CFLG (SYS.FL)	Configuration flags					
g-shift	PLvec ☐	PLxy:1 ☐	PLx.ax ☐	PLy.ax ☐	POLAR ☐	PROPFR ☒
f-shift	PLintg ☐	PLline ☒	PLnvec ☐	PLplus ☐	PLrms ☐	PLshad ☐
unshifted	PLbox ☒	PLcros ☐	PLcurve ☐	PLcxp ☐	PLdiff ☐	PLimp ☐
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	PLbox ▣	Flag	Box markers	SET for box markers ; CLEAR for box markers inactive ; Info : If PLbox is SET, PLcros and PLplus are CLEARed ; PLline is SET when all three curve markers are deselected	*Plotting*	PLbox		SET
F2	PLcros □	Flag	Cross markers	SET for cross markers ; CLEAR for cross markers inactive ; Info : If PLcros is SET, PLbox and PLplus are CLEARed ; PLline is SET when all three curve markers are deselected	*Plotting*	PLcros		CLEAR
F3	PLcurve □	Flag	[future] Curve smoothing	SET for [future] curve smoothing ; CLEAR for [future] curve smoothing inactive ; Info : Reserved for future use	*Plotting*	PLcurve		CLEAR
F4	PLcxp □	Flag	Complex plot	SET for ℂomplex plot ; CLEAR for ℂomplex plot inactive ; Info : PLcxp and PLimp are linked (both cannot be SET at the same time)	*Plotting*	PLcxp		CLEAR
F5	PLdiff □	Flag	Add differential curve	SET for adding the graphical point-to-point differential of the main graph ; CLEAR for not adding the differential curve ; Info : Δ Numerical slope is displayed	*Plotting*	PLdiff		CLEAR
F6	PLimp □	Flag	Plot imaginary part	SET for plotting imaginary part ; CLEAR for plotting real part ; Info : PLimp and PLcxp are linked (both cannot be SET at the same time)	*Plotting*	PLimp		CLEAR
fF1	PLintg □	Flag	Add integral curve	SET for adding the graphical integral curve, calculated from the point-to-point discrete integral ; CLEAR for not adding the integral curve ; Info : Vertical placement of the integral is at RMS of the graph points ; ∫□ Trapezoid integral is displayed	*Plotting*	PLintg		CLEAR
fF2	PLline ▣	Flag	Draw line	SET for connecting graph points using line segments ; CLEAR for not connecting graph points using line segments ; Info : If PLline is CLEARed, PLbox may be SET if necessary (when no curve markers are selected)	*Plotting*	PLline		SET
fF3	PLnvec □	Flag	Clockwise vectors	SET for clockwise vectors ; CLEAR for clockwise vectors inactive ; Info : Treat coordinate pairs as navigation vectors, clockwise from the positive y-axis as reference ; PLnvec and PLvec are linked (both cannot be SET at the same time)	*Plotting*	PLnvec		CLEAR
fF4	PLplus □	Flag	Plus markers	SET for plus markers ; CLEAR for plus markers inactive ; Info : If PLplus is SET, PLbox and PLcros are CLEARed ; PLline is SET when all three curve markers are deselected	*Plotting*	PLplus		CLEAR
fF5	PLrms □	Flag	Add RMS curve	SET for adding the graphical root mean square curve, accumulated from left to right ; CLEAR for not adding the RMS curve ; Info : ■ Root mean square RMS is displayed	*Plotting*	PLrms		CLEAR
fF6	PLshad □	Flag	Shade curve	SET for shading the trapezoid integral from the graph points ; CLEAR for not shading the curve ; Info : ∫□ Trapezoid integral is displayed	*Plotting*	PLshad		CLEAR
gF1	PLvec □	Flag	Anti-clockwise vectors	SET for anti-clockwise vectors ; CLEAR for anti-clockwise vectors inactive ; Info : Treat coordinate pairs as vectors, anti-clockwise from the positive x-axis as reference ; PLvec and PLnvec are linked (both cannot be SET at the same time)	*Plotting*	PLvec		CLEAR
gF2	PLxy:1 □	Flag	Forcing autoscale	SET for forcing autoscale on x- and y-axis to be the same ; CLEAR for not forcing autoscale on x- and y-axis to be the same	*Plotting*	PLxy:1		CLEAR
gF3	PLx.ax □	Flag	Autoscaling to show x-axis	SET for autoscaling to show x-axis ; CLEAR for not autoscaling to show x-axis	*Plotting*	PLx.ax		CLEAR
gF4	PLy.ax □	Flag	Autoscaling to show y-axis	SET for autoscaling to show y-axis ; CLEAR for not autoscaling to show y-axis	*Plotting*	PLy.ax		CLEAR
gF5	POLAR □	Flag	Polar notation	SET for polar notation ; CLEAR for rectangular notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ∟ ; ⊙	*Complex and coordinates*	POLAR		CLEAR
gF6	PROPFR ▣	Flag	Proper fractions	SET for proper fractions (mixed fractions) ; CLEAR for improper fractions ; SBI : a^b/n ; $^b/n$; [+≈] ; a^b/c×I ; $^b/c$×I ; [+≈]	*Fractions*	PROPFR		SET

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CFLG (SYS.FL)	Configuration flags					
g-shift	SBoc ▣	SBprn ▣	SBser ▣	SBshfR □	SBss □	SBstw ▣
f-shift	SBcpx ▣	SBcr □	SBdate ▣	SBfrac ▣	SBint ▣	SBmx □
unshifted	QUIET □	RP_{HP} ▣	$RUNTIM_{0}$	SBadm ▣	SBang □	SBbatV □
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p5	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	QUIET ☐	Flag	Quiet	SET for beeper disabled ; CLEAR for beeper enabled ; Info : Silences every sound source and clamps volume at both ends	*System*	QUIET		CLEAR
F2	RP_{HP} ☒	Flag	Classic (HP) Rect/Polar	SET for x : Re ; y : Im (RECT) ; r ; θ (POLAR) in X, Y ; CLEAR for y : Im ; x : Re (RECT) ; θ ; r (POLAR) in X, Y ; Info : RP_{HP} CLEAR conforms to the way the R47v0 deals with complex numbers	*Complex and coordinates*	RP_{HP}		SET
F3	$RUNTIM_0$	Flag (system)	Stopwatch running	SET for stopwatch running ; CLEAR for stopwatch not running ; Info : SBI ⏱ is shown if flag SBstw is SET ; SBI : ⏱	*Stopwatch*	RUNTIM		CLEAR
F4	SBadm ☒	Flag	Show degree symbol	SET for displaying degree symbol (°) in status bar ; CLEAR for not displaying degree symbol (°) in status bar ; Info : Setting flag SBang also sets SBadm ; clearing SBadm also clears flag SBang ; SBI : (°)	*Status*	SBadm		SET
F5	SBang ☐	Flag	Show angle symbol	SET for displaying angle symbol (∡) in status bar ; CLEAR for not displaying angle symbol (∡) in status bar ; Info : Setting flag SBang also sets SBadm ; clearing SBadm also clears flag SBang ; SBI : (∡)	*Status*	SBang		CLEAR
F6	SBbatV ☐	Flag	Show battery depletion	SET for displaying battery depletion (🪫) in status bar ; CLEAR for not displaying battery depletion (🪫) in status bar ; Info : If SBbatV is CLEAR, the regular icon (🔋) will show, but only when the battery is low (flag LOWBAT is SET) ; when SBbatV is SET the special battery symbol has length proportional to 2.054 V to 3.045 V ; SBI : (🪫)	*Status*	SBbatV		CLEAR
fF1	SBcpx ☒	Flag	Show complex mode	SET for displaying ℂomplex mode (Ł ; ⊙) in status bar ; CLEAR for not displaying ℂomplex mode (Ł ; ⊙) in status bar ; SBI : (Ł ; ⊙)	*Status*	SBcpx		SET
fF2	SBcr ☐	Flag	Show complex results	SET for displaying ℂomplex results (ℂ ; ℝ) in status bar ; CLEAR for not displaying ℂomplex results (ℂ ; ℝ) in status bar ; SBI : (ℂ ; ℝ)	*Status*	SBcr		CLEAR
fF3	SBdate ☒	Flag	Show date	SET for displaying date (CLK ; YY) in status bar ; CLEAR for not displaying date (CLK ; YY) in status bar ; Info : SBdate, SBtime and SBwoy are linked, only two out of three can be SET at most ; SBI : (CLK ; YY)	*Status*	SBdate		SET
fF4	SBfrac ☒	Flag	Show Fractions Mode and #BASE Mode	SET for displaying Fractions Mode and #BASE Mode (a^b/n ; $^b/n$; [+≈] ; a^b/c×I ; $^b/c$×I ; [+≈] ; #BASE ; $\#KEY_{A-F}$) in status bar ; CLEAR for not displaying Fractions Mode and #BASE Mode (a^b/n ; $^b/n$; [+≈] ; a^b/c×I ; $^b/c$×I ; [+≈] ; #BASE ; $\#KEY_{A-F}$) in status bar ; SBI : (a^b/n ; $^b/n$; [+≈] ; a^b/c×I ; $^b/c$×I ; [+≈] ; #BASE ; $\#KEY_{A-F}$)	*Status*	SBfrac		SET
fF5	SBint ☒	Flag	Show integer mode	SET for displaying integer mode (<w>:<m>) in status bar ; CLEAR for not displaying integer mode (<w>:<m>) in status bar ; Info : <w> in SBI indicates word size (menu BITSET) ; <m> in SBI indicates sign mode (menu BITSET) ; SBI : (<w>:<m>)	*Status*	SBint		SET
fF6	SBmx ☐	Flag	Show matrix mode	SET for displaying matrix mode (wrap ; grow) in status bar ; CLEAR for not displaying matrix mode (wrap ; grow) in status bar ; SBI : (wrap ; grow)	*Status*	SBmx		CLEAR
gF1	SBoc ☒	Flag	Show overflow/carry mode	SET for displaying overflow/carry mode (° ; $_c$) in status bar ; CLEAR for not displaying overflow/carry mode (° ; $_c$) in status bar ; SBI : (° ; $_c$)	*Status*	SBoc		SET
gF2	SBprn ☒	Flag	Show printing	SET for displaying printing (🖶) in status bar ; CLEAR for not displaying printing (🖶) in status bar ; SBI : (🖶)	*Status*	SBprn		SET
gF3	SBser ☒	Flag	Show serial I/O	SET for displaying serial I/O (⇕) in status bar ; CLEAR for not displaying serial I/O (⇕) in status bar ; SBI : (⇕)	*Status*	SBser		SET
gF4	SBshfR ☐	Flag	Show shift on the right	SET for displaying shift on the right (f ; g) in status bar ; CLEAR for displaying shift on the left (f ; g) in status bar ; SBI : (f ; g)	*Status*	SBshfR		CLEAR
gF5	SBss ☐	Flag	Show stack size	SET for displaying stack size (8 ; 4) in status bar ; CLEAR for not displaying stack size (8 ; 4) in status bar ; SBI : (8 ; 4)	*Status*	SBss		CLEAR
gF6	SBstw ☒	Flag	Show stopwatch running	SET for displaying stopwatch running (⏱) in status bar ; CLEAR for not displaying stopwatch running (⏱) in status bar ; SBI : (⏱)	*Status*	SBstw		SET

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CFLG (SYS.FL)	Configuration flags					
g-shift	VMDISP$_0$	WRPEDG$_0$	WRPEND$_0$	YMD$_1$	αCAP$_0$	←DROP ◻
f-shift	SOLVING$_0$	SPCRES ◼	SSIZE8 ◼	TDM24 ◼	USB$_0$	USER ◻
unshifted	SBtime ◻	SBtvm ◼	SBwoy ◻	SH.4s ◻	SIGO ◼	SLOW ◻
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p6	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	SBtime ◻	Flag	Show time	SET for displaying time (HH24:MM ; HH:MMam/pm) in status bar ; CLEAR for not displaying time (HH24:MM ; HH:MMam/pm) in status bar ; Info : SBtime, SBdate and SBwoy are linked, only two out of three can be SET at most ; SBI : (HH24:MM ; HH:MMam/pm)	*Status*	SBtime		CLEAR
F2	SBtvm ◙	Flag	Show TVM mode	SET for displaying TVM mode (END ; BEG) in status bar ; CLEAR for not displaying TVM mode (END ; BEG) in status bar ; SBI : (END ; BEG)	*Status*	SBtvm		SET
F3	SBwoy ◻	Flag	Show Week of Year and day number	SET for displaying Week of Year and day number (Ww#-d#) in status bar ; CLEAR for not displaying Week of Year and day number (Ww#-d#) in status bar ; Info : SBwoy, SBdate and SBtime are linked, only two out of three can be SET at most ; SBI : (Ww#-d#)	*Status*	SBwoy		CLEAR
F4	SH.4s ◻	Flag	Shift time-out of 4s	SET for shift time-out of 4s ; CLEAR for shift time-out of 4s inactive ; Info : For layouts containing key [f/g] only	*User interface*	SH.4s		CLEAR
F5	SIG0 ◙	Flag	Apply SIG zeros	SET for applying SIG zeros ; CLEAR for not applying SIG zeros ; Info : 'Apply SIG zeros' means displaying zeros for the integer part and trailing zeros for the fractional part ; zeros are required for the strict interpretation of SIG as implemented in prior C47/C43 and WP34S ; if SIG0 is CLEAR, SIG may be understood as 'maximum digits' and displays the resulting value in a more commonly used way	*Display*	SIG0		SET
F6	SLOW ◻	Flag	Slow mode	SET for slow mode ; CLEAR for slow mode inactive ; Info : Slow mode limits battery drain	*System*	SLOW		CLEAR
fF1	SOLVING$_0$	Flag (system)	Solving	SET for solver running ; CLEAR for solver not running	*Solver*	SOLVING		CLEAR
fF2	SPCRES ◙	Flag	Special results	SET for special results ; CLEAR for special results inactive ; Info : Special results are: infinity (±∞) and not-a-number (NaN), an error will not occur for such values when SPCRES is SET ; also, ±0. may be used	*Mathematics*	SPCRES		SET
fF3	SSIZE8 ◙	Flag	Stack Size 8	SET for 8 register stack ; CLEAR for 4 register stack ; Info : SBI 8 ; 4 is shown if flag SBss is SET ; SBI : 8 ; 4	*Stack*	SSIZE8		SET
fF4	TDM24 ◙	Flag	Time display 24h	SET for 24h time display ; CLEAR for 12h time display ; Format : HH24:MM ; HH:MMam/pm ; Info : SBI is shown if flag SBtime is SET ; SBI : HH24:MM ; HH:MMam/pm	*Display*	TDM24		SET
fF5	USB$_0$	Flag (system)	USB Power	SET for calculator running on USB power ; CLEAR for calculator running on battery power ; SBI : ψ	*System*	USB		CLEAR
fF6	USER ◻	Flag	USER mode	SET for USER mode ; CLEAR for Normal Mode ; SBI : U	*Customisation*	USER		CLEAR
gF1	VMDISP$_0$	Flag (system)	Variable menu displayed	SET for variable menu displayed ; CLEAR for variable menu not displayed	*Programming*	VMDISP		CLEAR
gF2	WRPEDG$_0$	Flag (system)	Wrap edge	SET for wrap edge ; CLEAR for wrap edge inactive	*Matrix operations*	WRPEDG		CLEAR
gF3	WRPEND$_0$	Flag (system)	Wrap end	SET for wrap end ; CLEAR for wrap end inactive	*Matrix operations*	WRPEND		CLEAR
gF4	YMD$_1$	Flag (system)	Year-month-day	SET for YYYY-MM-DD display mode ; CLEAR for YYYY-MM-DD display mode inactive ; Format : YYYY-MM-DD ; Info : SBI is shown if flag SBdate is SET ; SBI : YYYY-MM-DD	*Display*	YMD		SET
gF5	αCAP$_0$	Flag (system)	Alpha capslock	SET for alpha capslock ; CLEAR for alpha capslock inactive ; SBI : A ; a	*Text input*	αCAP		CLEAR
gF6	←DROP ◻	Flag	[←] executes DROPx or CLX	SET for [←] executing DROPx (when not in NIM) ; CLEAR for [←] executing CLX (when not in NIM)	*User interface*	←DROP		CLEAR

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CFLG (SYS.FL)	Configuration flags					
g-shift						
f-shift						
unshifted	🖶ACT$_0$	🖶EN ◻	🖶NORM ◻	🖶TRACE ◻		
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CHARS_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p7	CFLG (SYS.FL)	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
F1	🖶ACT$_0$	Flag (system)	Print port active	SET for infrared print port active ; CLEAR for infrared print port inactive ; Info : If flag 🖶ACT is SET, the infrared port is enabled ; if CLEAR, the infrared port is disabled	*Printing*	🖶ACT		CLEAR
F2	🖶EN ◻	Flag	Printing enabled	SET for printing enabled ; CLEAR for printing disabled	*Printing*	🖶EN		CLEAR
F3	🖶NORM ◻	Flag	Printer mode Normal/Trace	SET for printer mode Normal (flag 🖶TRACE is CLEAR) or printer mode Stack trace (flag 🖶TRACE is SET) ; CLEAR for printer mode Manual (flag 🖶TRACE is CLEAR) or printer mode Trace (flag 🖶TRACE is SET) ; Info : There are four print modes : MAN, NORM, TRACE and STRACE, which are set by two flags : 🖶TRACE and 🖶NORM	*Printing*	🖶NORM		CLEAR
F4	🖶TRACE ◻	Flag	Printer mode Trace/Stack trace	SET for printer mode Trace (flag 🖶NORM is CLEAR) or printer mode Stack trace (flag 🖶NORM is SET) ; CLEAR for printer mode Manual (flag 🖶NORM is CLEAR) or printer mode Normal (flag 🖶NORM is SET) ; Info : There are four print modes : MAN, NORM, TRACE and STRACE, which are set by two flags : 🖶TRACE and 🖶NORM	*Printing*	🖶TRACE		CLEAR
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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CHARS	Characters					
g-shift						
f-shift						
unshifted	Myα	A...Ω	αMath	αMisc	αINTL	
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Chef_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CHARS	MENU	Characters	Access to all character submenus (Myα ; A...Ω/α...ω ; αMath ; αMisc ; αINTL/αintl)	*Catalog*		CHARS	
F1	Myα	MENU	MyAlpha	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R ; Shortcut : alpha long [EXIT] ; EIM long [EXIT] ; alpha long [<g>] (because KEY.LP is SET ; also available in alpha mode of PEM)	*Customisation*		Myα	
F2	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F3	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F4	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F5	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	CHARS	Link
F1	Myα	https://47calc.com/doc/R47/Menus/R47v0_Menu_MyAlpha_page_1.pdf
F2	A...Ω	https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_1.pdf
F3	αMath	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMATH_page_1.pdf
F4	αMisc	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMisc_page_1.pdf
F5	αINTL	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaINTL_page_1.pdf
F6		
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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Chef:	Cooking unit conversions					
g-shift	mℓ ←	→ $floz_{UK}$	mℓ ←	→ $pint_{UK}$	mℓ ←	→ qt_{UK}
f-shift	tsp_{UK} ←	→ $floz_{UK}$	$tbsp_{UK}$ ←	→ $floz_{UK}$	cup_{UK} ←	→ $floz_{UK}$
unshifted	tsp_{UK} ←	→ mℓ	$tbsp_{UK}$ ←	→ mℓ	cup_{UK} ←	→ mℓ
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Chef_page_2.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Chef:	MENU	Cooking unit conversions	Convert between cooking units ; this menu has two pages, one for the UK (imperial) units, the other for the US (customary) units : this is determined by flag $CONV_{US}$, which is SET for US units on page 1 ; CLEAR for UK units on page 1 (default CLEAR) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Cooking unit conversions*		Chef:	
F1	mℓ→tsp_{UK} (tsp_{UK} ←)	Function (monadic, linked)	mℓ to tsp_{UK}	Convert millilitre to UK imperial teaspoon ; TI : tsp_{UK}:	*Volume conversions*	$CONV_{HP}$		
F2	tsp_{UK}→mℓ (→ mℓ)	Function (monadic, linked)	tsp_{UK} to mℓ	Convert UK imperial teaspoon to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
F3	mℓ→$tbsp_{UK}$ ($tbsp_{UK}$ ←)	Function (monadic, linked)	mℓ to $tbsp_{UK}$	Convert millilitre to UK imperial tablespoon ; TI : $tbsp_{UK}$:	*Volume conversions*	$CONV_{HP}$		
F4	$tbsp_{UK}$→mℓ (→ mℓ)	Function (monadic, linked)	$tbsp_{UK}$ to mℓ	Convert UK imperial tablespoon to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
F5	mℓ→cup_{UK} (cup_{UK} ←)	Function (monadic, linked)	mℓ to cup_{UK}	Convert millilitre to UK imperial cup ; TI : cup_{UK}:	*Volume conversions*	$CONV_{HP}$		
F6	cup_{UK}→mℓ (→ mℓ)	Function (monadic, linked)	cup_{UK} to mℓ	Convert UK imperial cup to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
fF1	$floz_{UK}$→tsp_{UK} (tsp_{UK} ←)	Function (monadic, linked)	$floz_{UK}$ to tsp_{UK}	Convert UK fluid ounce to UK imperial teaspoon ; TI : tsp_{UK}:	*Volume conversions*	$CONV_{HP}$		
fF2	tsp_{UK}→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	tsp_{UK} to $floz_{UK}$	Convert UK imperial teaspoon to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
fF3	$floz_{UK}$→$tbsp_{UK}$ ($tbsp_{UK}$ ←)	Function (monadic, linked)	$floz_{UK}$ to $tbsp_{UK}$	Convert UK fluid ounce to UK imperial tablespoon ; TI : $tbsp_{UK}$:	*Volume conversions*	$CONV_{HP}$		
fF4	$tbsp_{UK}$→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	$tbsp_{UK}$ to $floz_{UK}$	Convert UK imperial tablespoon to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
fF5	$floz_{UK}$→cup_{UK} (cup_{UK} ←)	Function (monadic, linked)	$floz_{UK}$ to cup_{UK}	Convert UK fluid ounce to UK imperial cup ; TI : cup_{UK}:	*Volume conversions*	$CONV_{HP}$		
fF6	cup_{UK}→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	cup_{UK} to $floz_{UK}$	Convert UK imperial cup to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
gF1	$floz_{UK}$→mℓ (mℓ ←)	Function (monadic, linked)	$floz_{UK}$ to mℓ	Convert UK fluid ounce to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
gF2	mℓ→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	mℓ to $floz_{UK}$	Convert millilitre to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
gF3	$pint_{UK}$→mℓ (mℓ ←)	Function (monadic, linked)	$pint_{UK}$ to mℓ	Convert UK imperial pint to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
gF4	mℓ→$pint_{UK}$ (→ $pint_{UK}$)	Function (monadic, linked)	mℓ to $pint_{UK}$	Convert millilitre to UK imperial pint ; TI : $pint_{UK}$:	*Volume conversions*	$CONV_{HP}$		
gF5	qt_{UK}→mℓ (mℓ ←)	Function (monadic, linked)	qt_{UK} to mℓ	Convert UK quart to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
gF6	mℓ→qt_{UK} (→ qt_{UK})	Function (monadic, linked)	mℓ to qt_{UK}	Convert millilitre to UK quart ; TI : qt_{UK}:	*Volume conversions*	$CONV_{HP}$		

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Chef:	Cooking unit conversions					
g-shift	mℓ ←	→ $floz_{US}$	mℓ ←	→ $pint_{US}$	mℓ ←	→ qt_{US}
f-shift	tsp_{US} ←	→ $floz_{US}$	$Tbsp_{US}$ ←	→ $floz_{US}$	cup_{US} ←	→ $floz_{US}$
unshifted	tsp_{US} ←	→ mℓ	$Tbsp_{US}$ ←	→ mℓ	cup_{US} ←	→ mℓ
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CLK_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	Chef:	MENU	Cooking unit conversions	Convert between cooking units ; this menu has two pages, one for the UK (imperial) units, the other for the US (customary) units : this is determined by flag $CONV_{US}$, which is SET for US units on page 1 ; CLEAR for UK units on page 1 (default CLEAR) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Cooking unit conversions*		Chef:	
F1	mℓ→tsp_{US} (tsp_{US} ←)	Function (monadic, linked)	mℓ to tsp_{US}	Convert millilitre to US customary teaspoon ; TI : tsp_{US}:	*Volume conversions*	$CONV_{HP}$		
F2	tsp_{US}→mℓ (→ mℓ)	Function (monadic, linked)	tsp_{US} to mℓ	Convert US customary teaspoon to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
F3	mℓ→$Tbsp_{US}$ ($Tbsp_{US}$ ←)	Function (monadic, linked)	mℓ to $Tbsp_{US}$	Convert millilitre to US customary tablespoon ; TI : $Tbsp_{US}$:	*Volume conversions*	$CONV_{HP}$		
F4	$Tbsp_{US}$→mℓ (→ mℓ)	Function (monadic, linked)	$Tbsp_{US}$ to mℓ	Convert US customary tablespoon to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
F5	mℓ→cup_{US} (cup_{US} ←)	Function (monadic, linked)	mℓ to cup_{US}	Convert millilitre to US customary cup ; TI : cup_{US}:	*Volume conversions*	$CONV_{HP}$		
F6	cup_{US}→mℓ (→ mℓ)	Function (monadic, linked)	cup_{US} to mℓ	Convert US customary cup to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
fF1	$floz_{US}$→tsp_{US} (tsp_{US} ←)	Function (monadic, linked)	$floz_{US}$ to tsp_{US}	Convert US fluid ounce to US customary teaspoon ; TI : tsp_{US}:	*Volume conversions*	$CONV_{HP}$		
fF2	tsp_{US}→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	tsp_{US} to $floz_{US}$	Convert US customary teaspoon to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
fF3	$floz_{US}$→$Tbsp_{US}$ ($Tbsp_{US}$ ←)	Function (monadic, linked)	$floz_{US}$ to $Tbsp_{US}$	Convert US fluid ounce to US customary tablespoon ; TI : $Tbsp_{US}$:	*Volume conversions*	$CONV_{HP}$		
fF4	$Tbsp_{US}$→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	$Tbsp_{US}$ to $floz_{US}$	Convert US customary tablespoon to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
fF5	$floz_{US}$→cup_{US} (cup_{US} ←)	Function (monadic, linked)	$floz_{US}$ to cup_{US}	Convert US fluid ounce to US customary cup ; TI : cup_{US}:	*Volume conversions*	$CONV_{HP}$		
fF6	cup_{US}→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	cup_{US} to $floz_{US}$	Convert US customary cup to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
gF1	$floz_{US}$→mℓ (mℓ ←)	Function (monadic, linked)	$floz_{US}$ to mℓ	Convert US fluid ounce to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
gF2	mℓ→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	mℓ to $floz_{US}$	Convert millilitre to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
gF3	$pint_{US}$→mℓ (mℓ ←)	Function (monadic, linked)	$pint_{US}$ to mℓ	Convert US liquid pint to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
gF4	mℓ→$pint_{US}$ (→ $pint_{US}$)	Function (monadic, linked)	mℓ to $pint_{US}$	Convert millilitre to US liquid pint ; TI : $pint_{US}$:	*Volume conversions*	$CONV_{HP}$		
gF5	qt_{US}→mℓ (mℓ ←)	Function (monadic, linked)	qt_{US} to mℓ	Convert US quart to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
gF6	mℓ→qt_{US} (→ qt_{US})	Function (monadic, linked)	mℓ to qt_{US}	Convert millilitre to US quart ; TI : qt_{US}:	*Volume conversions*	$CONV_{HP}$		

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χ^2:	Chi-squared distribution					
g-shift	STO_M ν					
f-shift						
unshifted	$\chi^2_P(x)$		$\chi^2_\Delta(x)$	$\chi^2_\Delta(x)$		$(\chi^2)^{-1}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	χ^2:	MENU	Chi-squared distribution	Chi-squared probability distribution (continuous) ; TI : RegM = ν =	*Probability (real)*		χ^2:	
F1	$\chi^2_p(x)$	Function (monadic)	Chi-squared pdf chi2	Chi-squared probability density function	*Probability (real)*		$\chi^2_p(x)$	
F2								
F3	$\chi^2_{\triangle}(x)$	Function (monadic)	Chi-squared cdf (lower) chi2	Chi-squared cumulative distribution (lower tail)	*Probability (real)*		$\chi^2_{\triangle}(x)$	
F4	$\chi^2_{\triangle}(x)$	Function (monadic)	Chi-squared cdf (upper) chi2	Chi-squared cumulative distribution (upper tail)	*Probability (real)*		$\chi^2_{\triangle}(x)$	
F5								
F6	$(\chi^2)^{-1}$	Function (monadic)	Chi-squared qf (inverse)	Chi-squared inverse cumulative distribution (quantile)	*Probability (real)*		$(\chi^2)^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO$_M$ ν	Command	Store ν in M	Store parameter ν : degrees of freedom in register M ; Split screen : RegM = ν =	*Probability (real)*			
gF2								
gF3								
gF4								
gF5								
gF6								

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CLK	Clock					
g-shift	zyx→𝔻	x→𝔻	zyx→𝕋	H.MS→𝕋	H→𝕋	YY_0
f-shift	𝔻→zyx	𝔻→x	𝕋→zyx	$.ms^{-1}$	.d	LEAP?
unshifted	Date→𝔻	𝔻→J	Time→𝕋	𝔻𝕋→J	J→𝔻𝕋	STOPW
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf
Ref 2 https://47calc.com/doc/Application%20Notes/AN0014_C47_JM_dms_hms_and_ms.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CLK	MENU	Clock	Clock functions, including setting date and time and julian day numbers (astronomy) ; Info : Use TDISP to set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Time functions*		CLK	
F1	Date→𝔻	Command	Date	Current date ; TI : Weekday (shown for dates in X, Y, Z)	*Time functions*		Date→𝔻	
F2	𝔻→J	Function (monadic)	Date to Julian day number	Convert date to Julian day number (JDN) ; Info : Years are astronomical, 0 equals 1 BCE ; JDN .0 equals noon!	*Time functions*		𝔻→J	
F3	Time→𝕋	Command	Time	Current time	*Time functions*		Time→𝕋	
F4	𝔻𝕋→J	Function (dyadic)	Date-time to Julian day number	Convert date, time in stack to Julian day number (JDN) ; Info : Date, time can be in Y, X or X, Y ; Years are astronomical, 0 equals 1 BCE ; JDN .0 equals noon!	*Time functions*		𝔻𝕋→J	
F5	J→𝔻𝕋	Command	Julian day number to date-time	Convert Julian day number (JDN) to date in Y and time in X ; Info : Years are astronomical, 0 equals 1 BCE ; JDN .0 equals noon!	*Time functions*		J→𝔻𝕋	
F6	STOPW	App	Stopwatch	Stopwatch with running time, counter and countdown (playing BEEP after running down) ; SBI : ⏱	*Time functions*	RUNTIM	STOPW	
fF1	𝔻→zyx	Function (monadic)	Decompose date	Decompose date to Z, Y, X according to CLK settings for date format	*Time functions*		𝔻→zyx	
fF2	𝔻→x	Function (monadic)	Date to X	Convert date to date input number according to CLK date format settings DD.MM.YYYY, MM/DD/YYYY or YYYY-MM-DD ; implied conversion set by YY does not apply ; TI : yyyy.mmdd:	*Time functions*		𝔻→x	
fF3	𝕋→zyx	Function (monadic)	Decompose time	Decompose time to 24H hours in Z, minutes in Y, seconds in X	*Time functions*		𝕋→zyx	
fF4	.ms⁻¹	Function (monadic)	Sexagesimal	Convert hh:mm:ss hours or dd°mm'ss" degrees to sexagesimal format number (untag) ; TI : hh/dd.mmss: ; Info : puts sexagesimal NIM input of .ms back as decimal number on the stack	*Time/angle conversions*		.ms⁻¹	
fF5	.d	Function (monadic)	Decimal (Real) or 𝔻ate	Convert to decimal (Real) or date value ; untag (ADM) angle ; clear Fractions Mode, #BASE Mode ; convert angles / Times / Dates to Real ; convert NIM input to 𝔻ate (according to CLK date format settings and implied conversion set by YY ; convert ℂomplex number with zero imaginary part to Real ; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM) ; when editing short integers, key .d removes the base (Normal Mode and PEM) ; in PEM, .d registers as →REAL ; TI : decimal h: or yyyy.mmdd: ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Reals*	FRACT		
fF6	LEAP?	Command (logical)	Leap year?	Test X is a date in a leap year (test function 𝔻? must be true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		LEAP?	
gF1	zyx→𝔻	Function (triadic)	Compose date	Compose date from Z, Y, X according to CLK date format settings DD.MM.YYYY, MM/DD/YYYY or YYYY-MM-DD ; implied conversion set by YY does not apply ; TI : Weekday ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Time functions*		zyx→𝔻	
gF2	x→𝔻	Function (monadic)	X to date	Convert date input number to date according to CLK date format settings DD.MM.YYYY, MM/DD/YYYY or YYYY-MM-DD ; implied conversion set by YY does not apply ; TI : Weekday ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Time functions*		x→𝔻	
gF3	zyx→𝕋	Function (monadic)	Compose time	Compose time from 24H hours in Z, minutes in Y, seconds in X	*Time functions*		zyx→𝕋	
gF4	H.MS→𝕋	Function (monadic)	Convert sexagesimal to time	Convert sexagesimal format input sequence to hh:mm:ss hours ; Info : NIM input treated as sexagesimal (hh.mmss) format ; stack input treated as decimal value	*Time functions*		H.MS→𝕋	
gF5	H→𝕋	Function (monadic)	Convert decimal hours to time	Convert decimal hours to hh:mm:ss hours ; Info : NIM input treated as sexagesimal (hh.mmss) format ; stack input treated as decimal value ; zero time (interval) displayed as "0.1s"	*Time functions*		H→𝕋	
gF6	YY_0	Setting (pgm)	Two digit year limit	Set the limit <ccyy> for two digit year conversion in function .d (in NIM only), up to which the specified (tracked) century <cc> is implied and above which the prior century <cc-1> is used ; TAM : YY ____ TamNonRegTrk menu ; Info : Displayed with subscript <ccyy> as YY_{ccyy}	*Time functions*		YY_0	0

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CLK	Clock					
g-shift	Date→D	Time→T	WOY	SECOND	MINUTE	HOUR
f-shift	SETDAT	SETTIM	WDAY	DAY	MONTH	YEAR
unshifted	CLK12 ○	CLK24 ◎	TDISP$_0$	DMY ○	MDY ○	YMD ◎
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0014_C47_JM_dms_hms_and_ms.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	CLK	MENU	Clock	Clock functions, including setting date and time and julian day numbers (astronomy) ; Info : Use TDISP to set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Time functions*		CLK	
F1	CLK12 ○	Setting (pgm)	12 hour clock	Switch on 12h time display ; Format : HH24:MM ; HH:MMam/pm ; Info : SBI is shown if flag SBtime is SET ; SBI : HH:MMam/pm	*Display*	TDM24	CLK12 ○	OFF
F2	CLK24 ◉	Setting (pgm)	24 hour clock	Switch on 24h time display ; Format : HH24:MM ; HH:MMam/pm ; Info : SBI is shown if flag SBtime is SET ; SBI : HH24:MM	*Display*	TDM24	CLK24 ◉	ON
F3	TDISP$_0$	Setting (pgm)	Time display format	Set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; TAM : TDISP _ TamNonReg menu	*Display*		TDISP$_0$	0
F4	DMY ○	Setting (pgm)	Day.month.year	Switch on DD.MM.YYYY display mode ; Format : DD.MM.YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : DD.MM.YYYY	*Display*	DMY	DMY ○	OFF
F5	MDY ○	Setting (pgm)	Month/day/year	Switch on MM/DD/YYYY display mode ; Format : MM/DD/YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : MM/DD/YYYY	*Display*	MDY	MDY ○	OFF
F6	YMD ◉	Setting (pgm)	Year-month-day	Switch on YYYY-MM-DD display mode ; Format : YYYY-MM-DD ; Info : SBI is shown if flag SBdate is SET ; SBI : YYYY-MM-DD	*Display*	YMD	YMD ◉	ON
fF1	SETDAT	Setting (pgm, HW)	Set date	Set date ; hardware only (DMCP setting) ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Time functions*		SETDAT	
fF2	SETTIM	Setting (pgm, HW)	Set time	Set time ; hardware only (DMCP setting) ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Time functions*		SETTIM	
fF3	WDAY	Function (monadic)	Day of week number (ISO)	Day of week number (ISO, of date in X) regardless of Week of Year rule set ; TI : [ISO day] Weekday	*Time functions*		WDAY	
fF4	DAY	Function (monadic)	Day	Day (of date in X)	*Time functions*		DAY	
fF5	MONTH	Function (monadic)	Month	Month (of date in X)	*Time functions*		MONTH	
fF6	YEAR	Function (monadic)	Year	Year (of date in X)	*Time functions*		YEAR	
gF1	Date→𝔻	Command	Date	Current date ; TI : Weekday (shown for dates in X, Y, Z)	*Time functions*		Date→𝔻	
gF2	Time→𝕋	Command	Time	Current time	*Time functions*		Time→𝕋	
gF3	WOY	Function (monadic)	Week of Year	Week of Year (of date in X) according to rule set (default : WOY$_{ISO}$) ; TI : Week of Year =	*Time functions*		WOY	
gF4	SECOND	Function (monadic)	Seconds	Seconds (of time in X)	*Time functions*		SECOND	
gF5	MINUTE	Function (monadic)	Minutes	Minutes (of time in X)	*Time functions*		MINUTE	
gF6	HOUR	Function (monadic)	Hours	Hours (of time in X)	*Time functions*		HOUR	

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CLK	Clock					
g-shift						
f-shift	WOY#			WOY_{ISO}	WOY_{US}	WOY_{ME}
unshifted	J/G#	J/G	JG.1582	JG.1752	JG.1873	JG.1949
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0014_C47_JM_dms_hms_and_ms.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	CLK	MENU	Clock	Clock functions, including setting date and time and julian day numbers (astronomy) ; Info : Use TDISP to set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Date_formats.pdf	*Time functions*		CLK	
F1	J/G#	Command	Get Julian-Gregorian transition	Get the day that Julian date changes over to Gregorian date ; Info : Set by J/G	*Time functions*		J/G#	1752-09-14
F2	J/G	Function (monadic)	Set Julian-Gregorian transition	Set the day that Julian date changes over to Gregorian date (using date in X) ; Info : Input real number according to function x→D	*Time functions*		J/G	1752-09-14
F3	JG.1582	Setting (pgm)	Julian-Gregorian transition 1582	Set Julian-Gregorian transition date to 1582-10-15 ; Info : First Gregorian day set: 1582-10-15	*Time functions*		JG.1582	
F4	JG.1752	Setting (pgm)	Julian-Gregorian transition 1752	Set Julian-Gregorian transition date to 1752-09-14 ; Info : First Gregorian day set: 1752-09-14	*Time functions*		JG.1752	
F5	JG.1873	Setting (pgm)	Julian-Gregorian transition 1873	Set Julian-Gregorian transition date to 1873-01-01 ; Info : First Gregorian day set: 1873-01-01	*Time functions*		JG.1873	
F6	JG.1949	Setting (pgm)	Julian-Gregorian transition 1949	Set Julian-Gregorian transition date to 1949-10-01 ; Info : First Gregorian day set: 1949-10-01	*Time functions*		JG.1949	
fF1	WOY#	Command	Get Week of Year rule	Get Week of Year rule (default : WOY_{ISO}, week starts on Monday and week number depends on the first Thursday ; returns 1.4)	*Time functions*		WOY#	1.4
fF2								
fF3								
fF4	WOY_{ISO}	Setting (pgm)	ISO Week of Year rule	Set Week of Year rule to ISO ; week starts on Monday and week number depends on the first Thursday ; returns 1.4 ; TI : Week of Year rule set: Monday.Thursday ; Info : SBI Ww#-d# is shown if flag SBwoy is SET ; SBI : Ww#-d#	*Time functions*	SBwoy	WOY_{ISO}	ON
fF5	WOY_{US}	Setting (pgm)	US Week of Year rule	Set Week of Year rule to US ; week starts on Sunday and week number depends on the first Saturday ; returns 7.6 ; TI : Week of Year rule set: Sunday.Saturday ; Info : SBI Ww#-d# is shown if flag SBwoy is SET ; SBI : Ww#-d#	*Time functions*	SBwoy	WOY_{US}	OFF
fF6	WOY_{ME}	Setting (pgm)	Middle East Week of Year rule	Set Week of Year rule to Middle East ; week starts on Saturday and week number depends on the first Friday ; returns 6.5 ; TI : Week of Year rule set: Saturday.Friday ; Info : SBI Ww#-d# is shown if flag SBwoy is SET ; SBI : Ww#-d#	*Time functions*	SBwoy	WOY_{ME}	OFF
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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CLR	Clear					
g-shift	RESET	CLRMOD	CLTVM	CLGRF		DELETE
f-shift	CLFall	CLMall	CLVall	CLD	CLLCD	CLREGS
unshifted	CLΣ	CLMENU	CLCVAR	CLα	CLX	CLSTK
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CLR	MENU	Clear	Clear flags, programs, registers, stacks, variables and reset calculator	*Cleanup*		CLR	
F1	CLΣ	Command	Clear statistics	Clear all statistics data ; delete matrices HISTO and STATS	*Cleanup*		CLΣ	
F2	CLMENU	Command	Clear (program) menu	Clear the programmable menu	*Cleanup*		CLMENU	
F3	CLCVAR	Command	Clear current (program) variables	Clear current program variables	*Cleanup*		CLCVAR	
F4	CLα	Command	Clear alpha	Clear any register or variable and initialize it with an empty text string ; TAM : CLα __ Tam menu	*Cleanup*		CLα	
F5	CLX	Command	Clear X	Clear X-register and disable automatic stack lift for next entry	*Cleanup*		CLX	
F6	CLSTK	Command	Clear stack	Clear stack registers : when stack size is 8, clears XYZT ABCD ; when stack size is 4, clears XYZT ; if setting i LI is ON, the stack is filled with 0 (Long integers) ; when used while plotting, CLSTK returns to the normal screen as the stack is expected to show, implying an exit from graph and other modes ; Shortcut : longpress [←] ; SBI : 8 ; 4	*Cleanup*	SSIZE8	CLSTK	
fF1	CLFall	Command	Clear (user) flags	Clear all user flags (numbered and lettered) ; YESNO : Clear all flags? ; TI : All global user flags cleared	*Cleanup*		CLFALL	
fF2	CLMall	Command	Clear all menus	Clear assignments to all user defined menus ; YESNO : Clear all user menus? ; TI : All user menus cleared	*Cleanup*		CLMall	
fF3	CLVall	Command	Clear all variables	Clear all user variables ; clear matrices HISTO, STATS, Mat A, Mat B, Mat X ; YESNO : Clear all user variables? ; TI : All user variables cleared	*Cleanup*		CLVall	
fF4	CLD	Command	Clear message from display	Clear message from display	*Cleanup*		CLD	
fF5	CLLCD	Command (42)	Clear LCD	Clear the whole LCD display ; this is a 42-compatiblity command	*Cleanup*		CLLCD	
fF6	CLREGS	Command	Clear registers	Clear registers : general purpose 00-99 and IJK MNP QRS EFGH O UVW, local .00-.98 (if allocated) ; when stack size is 8, does not clear XYZT ABCD ; when stack size is 4, does not clear XYZT, but DOES clear ABCD ; YESNO : Clear registers? ; SBI : 8 ; 4	*Cleanup*	SSIZE8	CLREGS	
gF1	RESET	Command	Reset	Reset the calculator ; fill registers R10-R38 with special values ; this is the only way to do a clean restart if an autoload file is present ; YESNO : Reset? ; Info : Clean startup, no autoloading of SAVFILES/R47auto.sav or SAVFILES/R47.sav ; does not reset the keyboard layout chosen in menu KEYS	*System*		RESET	
gF2	CLRMOD	Command	Clear modes	Clear all menus, entry, fraction and base modes ; when used while plotting in Program Entry Mode, leaves a graph and carries on ; Shortcut : longerpress [EXIT] ; NIM longer [EXIT] ; alpha longer [EXIT] ; PEM longest [EXIT] ; EIM longer [EXIT]	*Cleanup*		CLRMOD	
gF3	CLTVM	Command	Clear TVM variables	Clear TVM variables	*Cleanup*		CLTVM	
gF4	CLGRF	Command (nonpgm)	Clear graph	Clear graph	*Cleanup*		CLGRF	
gF5								
gF6	DELETE	MENU	Delete	Commands for clearing and deleting (user) menus, variables, programs and backup files ; Info : User menus can be defined using ASSIGN	*Cleanup*		DELETE	

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p1	CLR	Link
F1	CLΣ	
F2	CLMENU	
F3	CLCVAR	
F4	CLα	
F5	CLX	
F6	CLSTK	
f F1	CLFall	
f F2	CLMall	
f F3	CLVall	
f F4	CLD	
f F5	CLLCD	
f F6	CLREGS	
g F1	RESET	
g F2	CLRMOD	
g F3	CLTVM	
g F4	CLGRF	
g F5		
g F6	DELETE	https://47calc.com/doc/R47/Menus/R47v0_Menu_DELETE_page_1.pdf

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CNST	Constants					
g-shift	G_0	G_c	g_e	$GM_\oplus$	$g_\oplus$	$\hbar$
f-shift	ℓ	e	F	F_α	F_δ	G
unshifted	a_g	a_{Moon}	$a_\oplus$	c	c_1	c_2
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F1	a_g	Constant	Days per year (Gregorian)	Constant # 1 a_g yr.gregor = $+3.652425 \times 10^{2}$; Unit : d	*Constants*			
F2	a_{Moon}	Constant	Moon orbit (semi major axis)	Constant # 3 a_{Moon} orb.moon = $+3.844 \times 10^{8}$; Unit : m	*Constants*			
F3	$a_{\oplus}$	Constant	Earth orbit (semi major axis)	Constant # 4 $a_{\oplus}$ orb.earth = $+1.495979 \times 10^{11}$; Unit : m	*Constants*			
F4	c	Constant	Speed of light (vacuum)	Constant # 5 c lightspeed = $+2.99792458 \times 10^{8}$; Unit : m/s	*Constants*			
F5	c_1	Constant	1st radiation constant	Constant # 6 c_1 c.radiatn1 = $+3.741771852192758011367155555929985 \times 10^{-16}$; Unit : z	*Constants*			
F6	c_2	Constant	2nd radiation constant	Constant # 7 c_2 c.radiatn2 = $+1.438776877503933802146671601543912 \times 10^{-2}$; Unit : mK	*Constants*			
fF1	e	Constant	Euler's	Constant # 9 e e.euler = +2.718281828459045235360287471352662	*Constants*			
fF2	e	Constant	Elementary charge	Constant # 8 e charge.elem = $+1.602176634 \times 10^{-19}$; Unit : As	*Constants*			
fF3	F	Constant	Faraday constant	Constant # 10 F c.faraday = $+9.64853321233100184 \times 10^{4}$; Unit : As/mol	*Constants*			
fF4	F_α	Constant	Feigenbaum alpha	Constant # 11 F_α α.feigenbm = +2.502907875095892822283902873218216	*Constants*			
fF5	F_δ	Constant	Feigenbaum delta	Constant # 12 F_δ δ.feigenbm = +4.669201609102990671853203820466202	*Constants*			
fF6	G	Constant	Newtonian constant of gravitation	Constant # 13 G c.grav.nwt = $+6.6743 \times 10^{-11}$; Unit : $m^3/kg.s^2$	*Constants*			
gF1	G_0	Constant	Conductance quantum	Constant # 14 G_0 cond.quant = $+7.748091729863650646680823323308764 \times 10^{-5}$; Unit : Ω^{-1}	*Constants*			
gF2	G_C	Constant	Catalan's constant	Constant # 15 G_C c.catalan = $+9.159655941772190150546035149323841 \times 10^{-1}$	*Constants*			
gF3	g_e	Constant	Landé's electron g-factor	Constant # 16 g_e gfact.elec = -2.00231930436092	*Constants*			
gF4	$GM_{\oplus}$	Constant	Geocentric gravitational constant	Constant # 17 $GM_{\oplus}$ c.grav.geo = $+3.986004418 \times 10^{14}$; Unit : m^3/s^2	*Constants*			
gF5	$g_{\oplus}$	Constant	Standard Earth acceleration	Constant # 18 $g_{\oplus}$ acc.earth = +9.80665 ; Unit : m/s^2	*Constants*			
gF6	h	Constant	Planck constant	Constant # 19 h c.planck = $+6.62607015 \times 10^{-34}$; Unit : Js	*Constants*			

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CNST	Constants					
g-shift	m_u	$m_u c^2$	m_μ	$M_\odot$	$M_\oplus$	N_A
f-shift	M_{Moon}	m_n	m_n/m_p	m_p	m_{PL}	m_p/m_e
unshifted	$\hbar$	K_0	k_B	K_J	l_{PL}	m_e
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F1	$\hbar$	Constant	Reduced Planck constant	Constant # 20 $\hbar$ red.planck = +1.054571817646156391262428003302281 × 10^{-34} ; Unit : Js	*Constants*			
F2	K_0	Constant	Khinchin constant	Constant # 57 K_0 c.khinchin = +2.685452001065306445309714835481796	*Constants*			
F3	k_B	Constant	Boltzmann constant	Constant # 21 k_B c.boltzmn = +1.380649 × 10^{-23} ; Unit : J/K	*Constants*			
F4	K_J	Constant	Josephson constant	Constant # 22 K_J c.josephsn = +4.835978484169836324476582850545281 × 10^{14} ; Unit : Hz/V	*Constants*			
F5	l_{PL}	Constant	Planck length	Constant # 23 l_{PL} len.planck = +1.616255 × 10^{-35} ; Unit : m	*Constants*			
F6	m_e	Constant	Electron rest mass	Constant # 24 m_e mass.elec = +9.1093837139 × 10^{-31} ; Unit : kg	*Constants*			
fF1	M_{Moon}	Constant	Mass of the Moon	Constant # 25 M_{Moon} mass.moon = +7.349 × 10^{22} ; Unit : kg	*Constants*			
fF2	m_n	Constant	Neutron rest mass	Constant # 26 m_n mass.neu = +1.67492750056 × 10^{-27} ; Unit : kg	*Constants*			
fF3	m_n/m_p	Constant	Neutron / proton rest mass	Constant # 27 m_n/m_p r.neu.prot = +1.00137841946	*Constants*			
fF4	m_p	Constant	Proton rest mass	Constant # 28 m_p mass.prot = +1.67262192595 × 10^{-27} ; Unit : kg	*Constants*			
fF5	m_{PL}	Constant	Planck mass	Constant # 29 m_{PL} mass.planck = +2.176434 × 10^{-8} ; Unit : kg	*Constants*			
fF6	m_p/m_e	Constant	Proton / electron rest mass	Constant # 30 m_p/m_e r.prot.elec = +1.83615267342 × 10^{3}	*Constants*			
gF1	m_u	Constant	Atomic mass constant	Constant # 31 m_u mass.atom = +1.6605390689 × 10^{-27} ; Unit : kg	*Constants*			
gF2	m_uc^2	Constant	Energy equivalent of m_u	Constant # 32 m_uc^2 energy.atom = +1.4924180876 × 10^{-10} ; Unit : J	*Constants*			
gF3	m_μ	Constant	Muon rest mass	Constant # 33 m_μ mass.muon = +1.883531627 × 10^{-28} ; Unit : kg	*Constants*			
gF4	$M_\odot$	Constant	Mass of the Sun	Constant # 34 $M_\odot$ mass.sun = +1.9891 × 10^{30} ; Unit : kg	*Constants*			
gF5	$M_\oplus$	Constant	Mass of the Earth	Constant # 35 $M_\oplus$ mass.earth = +5.9736 × 10^{24} ; Unit : kg	*Constants*			
gF6	N_A	Constant	Avogadro's number	Constant # 36 N_A nr.avogadro = +6.02214076 × 10^{23} ; Unit : /mol	*Constants*			

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CNST	Constants					
g-shift	Se^2	Se'^2	Sf^{-1}	T_0	T_P	t_{PL}
f-shift	R_{Moon}	R_∞	$R_\odot$	$R_\oplus$	$S_{a\oplus}$	$S_{b\oplus}$
unshifted	NaN	p_0	R	r_{Bohr}	r_e	R_K
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F1	NaN	Constant	Not a Number	Constant # 37 NaN not.a.nr = Not a number	*Constants*			
F2	p_0	Constant	Standard atmospheric pressure	Constant # 38 p_0 press.atm = +1.01325 × 10^5 ; Unit : Pa	*Constants*			
F3	R	Constant	Molar gas constant	Constant # 39 R c.mol.gas = +8.31446261815324 ; Unit : J/mol K	*Constants*			
F4	r_{Bohr}	Constant	Bohr radius	Constant # 2 r_{Bohr} rad.bohr = +5.29177210544 × 10^{-11} ; Unit : m	*Constants*			
F5	r_e	Constant	Classical electron radius	Constant # 40 r_e rad.elec = +2.8179403205 × 10^{-15} ; Unit : m	*Constants*			
F6	R_K	Constant	Von Klitzing constant	Constant # 41 R_K c.klitzing = +2.581280745930450666004551670608744 × 10^4 ; Unit : Ω	*Constants*			
fF1	R_{Moon}	Constant	Mean radius of the Moon	Constant # 42 R_{Moon} rad.moon = +1.73753 × 10^6 ; Unit : m	*Constants*			
fF2	R_∞	Constant	Rydberg constant	Constant # 43 R_∞ c.rydberg = +1.097373156815 × 10^7 ; Unit : /mol	*Constants*			
fF3	$R_\odot$	Constant	Mean radius of the Sun	Constant # 44 $R_\odot$ rad.sun = +6.96 × 10^8 ; Unit : m	*Constants*			
fF4	$R_\oplus$	Constant	Mean radius of the Earth	Constant # 45 $R_\oplus$ rad.earth = +6.37101 × 10^6 ; Unit : m	*Constants*			
fF5	$S_{a\oplus}$	Constant	Semi-major axis of the Earth	Constant # 46 $S_{a\oplus}$ majax.earth = +6.378137 × 10^6 ; Unit : m	*Constants*			
fF6	$S_{b\oplus}$	Constant	Semi-minor axis of the Earth	Constant # 47 $S_{b\oplus}$ minax.earth = +6.35675231 42 × 10^6 ; Unit : m	*Constants*			
gF1	Se^2	Constant	1st eccentricity squared	Constant # 48 Se^2 sq.eccent1 = +6.69437999014 × 10^{-3}	*Constants*			
gF2	Se'^2	Constant	2nd eccentricity squared	Constant # 49 Se'^2 sq.eccent2 = +6.73949674228 × 10^{-3}	*Constants*			
gF3	Sf^{-1}	Constant	Flattening factor	Constant # 50 Sf^{-1} f.flatteng = +2.98257223563 × 10^2	*Constants*			
gF4	T_0	Constant	Standard temperature	Constant # 51 T_0 temp.stand = +2.7315 × 10^2 ; Unit : K	*Constants*			
gF5	T_P	Constant	Planck temperature	Constant # 52 T_P temp.planck = +1.416784 × 10^{32} ; Unit : K	*Constants*			
gF6	t_{PL}	Constant	Planck time	Constant # 53 t_{PL} time.planck = +5.391247 × 10^{-44} ; Unit : s	*Constants*			

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CNST	Constants					
g-shift	μ_B	μ_e	μ_e/μ_B	μ_G	μ_n	μ_p
f-shift	$\Delta\nu_{Cs}$	ε_0	λ_C	λ_{Cn}	λ_{Cp}	μ_0
unshifted	V_m	Z_0	α_F	γ_{EM}	γ_p	δ_s
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F1	V_m	Constant	Volume of ideal gas	Constant # 54 V_m volume.gas = +2.24139695450141377350111028867505 6 × 10^{-2} ; Unit : m^3/mol	*Constants*			
F2	Z_0	Constant	Characteristic impedance of vacuum	Constant # 55 Z_0 imped.vac = +3.76730313412 × 10^{2} ; Unit : Ω	*Constants*			
F3	α_F	Constant	Fine-structure constant	Constant # 56 α_F c.finestruc = +7.29735256 43 × 10^{-3}	*Constants*			
F4	γ_{EM}	Constant	Euler-Mascheroni constant	Constant # 58 γ_{EM} c.eul.masc = +5.772156649015328606065120900824024 × 10^{-1}	*Constants*			
F5	γ_p	Constant	Proton gyromagnetic ratio	Constant # 59 γ_p r.gyro.prot = +2.6752218708 × 10^{8}	*Constants*			
F6	δ_S	Constant	Silver ratio	Constant # 81 δ_S r.silver = +2.414213562373095048801688724209698 -- see https://arxiv.org/pdf/2309.05050.pdf ; Info : δ_S = 1 + √2	*Constants*			
fF1	$\Delta\nu_{Cs}$	Constant	Hyperfine transition frequency of ^{133}Cs	Constant # 60 $\Delta\nu_{Cs}$ frq.hypf.cs = +9.19263177 × 10^{9} ; Unit : Hz	*Constants*			
fF2	ε_0	Constant	Vacuum electric permittivity	Constant # 61 ε_0 epermt.vac = +8.8541878188 × 10^{-12} ; Unit : As/Vm	*Constants*			
fF3	λ_C	Constant	Compton wavelength of the electron	Constant # 62 λ_C wavln.elec = +2.42631023538 × 10^{-12} ; Unit : m	*Constants*			
fF4	λ_{Cn}	Constant	Compton wavelength of the neutron	Constant # 63 λ_{Cn} wavln.neu = +1.31959090382 × 10^{-15} ; Unit : m	*Constants*			
fF5	λ_{Cp}	Constant	Compton wavelength of the proton	Constant # 64 λ_{Cp} wavln.prot = +1.32140985360 × 10^{-15} ; Unit : m	*Constants*			
fF6	μ_0	Constant	Vacuum magnetic permeability	Constant # 65 μ_0 mpermb.vac = +1.25663706127 × 10^{-6} ; Unit : Vs/Am	*Constants*			
gF1	μ_B	Constant	Bohr's magneton	Constant # 66 μ_B magn.both = +9.274010065 × 10^{-24} ; Unit : J/T	*Constants*			
gF2	μ_e	Constant	Electron magnetic moment	Constant # 67 μ_e mgmom.elec = -9.2847646917 × 10^{-24} ; Unit : J/T	*Constants*			
gF3	μ_e/μ_B	Constant	Electron magnetic moment / Bohr's magneton	Constant # 68 μ_e/μ_B r.elec.bohr = -1.00115965218046	*Constants*			
gF4	μ_G	Constant	Gerver constant	Constant # 82 μ_G c.gerver = +2.21953166887197 -- see https://en.wikipedia.org/wiki/Moving_sofa_problem ; Info : Moving sofa problem	*Constants*			
gF5	μ_n	Constant	Neutron magnetic moment	Constant # 69 μ_n magmom.neu = -9.6623653 × 10^{-27} ; Unit : J/T	*Constants*			
gF6	μ_p	Constant	Proton magnetic moment	Constant # 70 μ_p mgmom.prot = +1.41060679545 × 10^{-26} ; Unit : J/T	*Constants*			

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CNST	Constants					
g-shift						
f-shift	ϕ	Φ_0	$\omega_\oplus$	$-\infty$	$+\infty$	
unshifted	μ_u	μ_μ	ξ_B	π	σ_B	τ
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p5	CNST	MENU (ASM)	Constants	Important scientific and technical constants ; Info : In Program Entry Mode, constants selected from the menu are stored in programs as "# ", the reference number, the label and the abbreviated name ; in the equation editor the label is simply preceded by "#" ; Type characters 1-2 to search ; TI : <constant abbreviation> = <value> ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Constants.pdf	*Catalog*		CNST	
F1	μ_u	Constant	Nuclear magneton	Constant # 71 μ_u magn.nucl = +5.0507837393 × 10^{-27} ; Unit : J/T	*Constants*			
F2	μ_μ	Constant	Muon magnetic moment	Constant # 72 μ_μ mgmom.muon = -4.4904483 × 10^{-26} ; Unit : J/T	*Constants*			
F3	ξ_B	Constant	Backbone exponent	Constant # 80 ξ_B exp.bbone = +3.566668367128895828373073810012663 × 10^{-1} -- see https://en.wikipedia.org/wiki/Silver_ratio	*Constants*			
F4	π	Constant	pi	Constant # 84 π pi = +3.141592653589793238462643383279503	*Constants*			
F5	σ_B	Constant	Stefan-Boltzmann constant	Constant # 73 σ_B c.stephbol = +5.670374419184429453970996731889231 × 10^{-8} ; Unit : W/m^2K^4	*Constants*			
F6	τ	Constant	tau	Constant # 83 τ c.circle = +6.283185307179586476925286766559006	*Constants*			
fF1	ϕ	Constant	Golden ratio	Constant # 74 ϕ r.golden = +1.618033988749894848204586834365638 ; Info : $\phi = (1 + \sqrt{5}) / 2$	*Constants*			
fF2	Φ_0	Constant	Magnetic flux quantum	Constant # 75 Φ_0 fluxq.magn = +2.067833848461929323081115412147497 × 10^{-15} ; Unit : Vs	*Constants*			
fF3	$\omega_\oplus$	Constant	Nominal mean angular velocity of the Earth	Constant # 76 $\omega_\oplus$ vangl.earth = +7.292115 × 10^{-5} ; Unit : rad/s	*Constants*			
fF4	$-\infty$	Constant	Minus infinity	Constant # 77 $-\infty$ inf.minus = $-\infty$	*Constants*			
fF5	$+\infty$	Constant	Plus infinity	Constant # 78 $+\infty$ inf.plus = $+\infty$	*Constants*			
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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CONFIGS	Config variables					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CONFIGS	MENU	Config variables	Auto-generated catalog of variables of the specified datatype : Config (9)	*Catalog*		CONFIGS	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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CONV	Unit conversions					
g-shift	Misc:	Struct:				FFF+:
f-shift	Power:	Ymmv:	Angle:	Speed:	F&p:	Chef:
unshifted	Energy:	Mass:	Temp:	Length:	Area:	Volume:
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CONV	MENU	Unit conversions	Unit conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0024_C47_R47_JM_Assigning_custom_conversion_pairs.pdf	*Unit conversions*		CONV	
F1	Energy:	MENU	Energy conversions	Convert between units of energy ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Energy conversions*	$CONV_{HP}$	Energy:	
F2	Mass:	MENU	Mass conversions	Convert between units of mass ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Mass conversions*	$CONV_{HP}$	Mass:	
F3	Temp:	MENU	Temperature conversions	Convert between units of temperature ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Temperature conversions*	$CONV_{HP}$	Temp:	
F4	Length:	MENU	Length conversions	Convert between units of length ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Distance conversions*	$CONV_{HP}$	Length:	
F5	Area:	MENU	Area conversions	Convert between units of area ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Area conversions*	$CONV_{HP}$	Area:	
F6	Volume:	MENU	Volume conversions	Convert between units of volume ; this menu has two pages, one for the UK (imperial) units, the other for the US (customary) units : this is determined by flag $CONV_{US}$, which is SET for US units on page 1 ; CLEAR for UK units on page 1 (default CLEAR) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Volume conversions*	$CONV_{HP}$	Volume:	
fF1	Power:	MENU	Power conversions	Convert between units of power ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Power conversions*	$CONV_{HP}$	Power:	
fF2	Ymmv:	MENU	Mileage conversions	Convert between units of mileage ("Your mileage may vary") ; Info : "E" designates "kWh" ; Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Mileage conversions*	$CONV_{HP}$	Ymmv:	
fF3	Angle:	MENU	Angle and angular velocity conversions	Convert between units of angle or angular velocity ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Angular/Speed conversions*	$CONV_{HP}$	Angle:	
fF4	Speed:	MENU	Speed conversions	Convert between units of speed ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Speed conversions*	$CONV_{HP}$	Speed:	
fF5	F&p:	MENU	Force & Pressure conversions	Convert between units of force and pressure ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Force & Pressure conversions*	$CONV_{HP}$	F&p:	
fF6	Chef:	MENU	Cooking unit conversions	Convert between cooking units ; this menu has two pages, one for the UK (imperial) units, the other for the US (customary) units : this is determined by flag $CONV_{US}$, which is SET for US units on page 1 ; CLEAR for UK units on page 1 (default CLEAR) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Cooking unit conversions*	$CONV_{HP}$	Chef:	
gF1	Misc:	MENU	Miscellaneous conversions	Time, torque, power and field ratio conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*	$CONV_{HP}$	Misc:	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF2	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*	$CONV_{HP}$	Struct:	
gF3								
gF4								
gF5								
gF6	FFF+:	MENU	Humorous conversions	Conversions to and from the furlong-firkin-fortnight (FFF) system (and bananas and beardseconds) -- see https://en.wikipedia.org/wiki/FFF_system ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Humorous conversions*	$CONV_{HP}$	FFF+:	

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p1	CONV	Link
F1	Energy:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Energy_page_1.pdf
F2	Mass:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Mass_page_1.pdf
F3	Temp:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Temp_page_1.pdf
F4	Length:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Length_page_1.pdf
F5	Area:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Area_page_1.pdf
F6	Volume:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Volume_page_1.pdf
fF1	Power:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Power_page_1.pdf
fF2	Ymmv:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Ymmv_page_1.pdf
fF3	Angle:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Angle_page_1.pdf
fF4	Speed:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Speed_page_1.pdf
fF5	F&p:	https://47calc.com/doc/R47/Menus/R47v0_Menu_F-and-p_page_1.pdf
fF6	Chef:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Chef_page_1.pdf
gF1	Misc:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Misc_page_1.pdf
gF2	Struct:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Struct_page_1.pdf
gF3		
gF4		
gF5		
gF6	FFF+:	https://47calc.com/doc/R47/Menus/R47v0_Menu_FFF+_page_1.pdf

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CPX	Complex functions					
g-shift	→R	→P	ℂ→R	R→ℂ	RECT ⊙	POLAR ○
f-shift	COMPLEX	UNITV	|x|	∡	dot	cross
unshifted	Re	Im	conj	Re≷Im	i	$i_{\odot}$
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_CPXS_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0001_C47_R47_JM_Complex_number_engineering_example.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CPX	MENU	Complex functions	Complex functions ; Ref : https://47calc.com/doc/Application%20Notes/AN0001_C47_R47_JM_Complex_number_engineering_example.pdf	*Complex numbers*		CPX	
F1	Re	Function (monadic)	Real part	Real part of Complex number	*Complex numbers*		Re	
F2	Im	Function (monadic)	Imaginary part	Imaginary part of Complex number	*Complex numbers*		Im	
F3	conj	Function (monadic)	Complex conjugate	Complex conjugate	*Complex numbers*		CONJ	
F4	Re⇄Im	Command	Exchange real and imaginary part	Exchange real and imaginary part of Complex number	*Complex numbers*		Re⇄Im	
F5	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F6	$i_{\odot}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\odot}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\odot}$	
fF1	COMPLEX	Function (dyadic)	Complex number	Convert to or from Complex number (2.0-2.5)	*Complex numbers*		COMPLEX	
fF2	UNITV	Command	Unit vector or matrix	Unit vector or matrix for Real or Complex matrix or vector ; the result will have Euclidean magnitude 1 ; Info : UNITV also applies to Complex numbers	*Complex numbers*		UNITV	
fF3	|x|	Function (monadic)	Magnitude	Magnitude (absolute value) of Complex number	*Complex numbers*		|x|	
fF4	∡	Function (monadic)	Argument (angle)	Argument (angle) of Complex number	*Complex numbers*		∡	
fF5	dot	Function (dyadic)	Dot product (·)	Dot product of vectors in X and Y	*Complex numbers*		DOT	
fF6	cross	Function (dyadic)	Cross product (×)	Cross product of vectors in X and Y	*Complex numbers*		CROSS	
gF1	→R	Function (monadic, dyadic)	To rectangular	Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $\rightarrow RECT_{hp}$ or $\rightarrow RECT_{cx}$ is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] $[\ v_1\ v_2\ ]$; 3D rectangular vector : [ijk] $[\ v_1\ v_2\ v_3\ ]$	*Complex and coordinates*	RP_{HP}	→RECT	
gF2	→P	Function (monadic, dyadic)	To polar	Transform rectangular to polar coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to polar notation (monadic) and set POLAR tag ; TI : r = ; θ = (POLAR) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $\rightarrow POL_{hp}$ or $\rightarrow POL_{cx}$ is stored ; for a 3D vector in X, function →POLAR (→P) cycles through →SPH, then →CYL ; vector display depends on flag 3Dxyz, for 2D polar vector : $[r\theta_{ij}]$ $[\ v_1\ v_2\ ]^p$; 3D spherical vector : $[\rho\theta_{ij}\phi_k]_M$ $[\ v_1\ v_2\ v_3\ ]^s$; 3D cylindrical vector : $[r\theta_{ij}k]$ $[\ v_1\ v_2\ v_3\ ]^c$	*Complex and coordinates*	RP_{HP}	→POLAR	
gF3	C→R	Function (monadic)	Complex to Real	Convert Complex to Real (in POLAR, using angle tag or ADM) ; TI : Im = ; Re = (RECT) ; θ = ; r = (POLAR) in X, Y	*Complex numbers*		C→R	
gF4	R→C	Function (dyadic)	Real to Complex	Convert Real to Complex (in POLAR, using angle tag or ADM)	*Complex numbers*		R→C	
gF5	RECT ⊙	Setting (pgm)	Rectangular notation	Switch on rectangular notation ; Info : SBI ⊾ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊾	*Complex and coordinates*	POLAR	RECT ⊙	ON
gF6	POLAR ○	Setting (pgm)	Polar notation	Switch on polar notation ; Info : SBI ⊾ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊙	*Complex and coordinates*	POLAR	POLAR ○	OFF

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CPXS	Complex variables					
g-shift						
f-shift						
unshifted						
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DATES_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	CPXS	MENU	Complex variables	Auto-generated catalog of variables of the specified datatype : Complex number (2.0-2.5)	*Catalog*		CPXS	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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DATES	Date variables					
g-shift						
f-shift						
unshifted						
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DELETE_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DATES	MENU	Date variables	Auto-generated catalog of variables of the specified datatype : Date (4)	*Catalog*		DATES	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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DELETE	Delete					
g-shift						DELITM
f-shift						
unshifted	DELall	DELMall	DELVall	DELPall	DELP	DELBkup
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DELITM_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DELETE	MENU	Delete	Commands for clearing and deleting (user) menus, variables, programs and backup files ; Info : User menus can be defined using ASSIGN	*Cleanup*		DELETE	
F1	DELall	Command	Delete all	Delete all user created programs, user menus, user variables and their assignments ; clear all keyboard user assignments ; reset user configurable menus to defaults ; YESNO : Delete all? ; TI : All user menus deleted ; All data, programs and definitions cleared	*Cleanup*		DELall	
F2	DELMall	Command	Delete all menus	Delete all user defined menus and their assignments ; YESNO : Delete all user menus? ; TI : All user menus deleted	*Cleanup*		DELMall	
F3	DELVall	Command	Delete all variables	Delete all user variables and their assignments ; clear matrices HISTO, STATS, Mat A, Mat B, Mat X ; YESNO : Delete all user variables? ; TI : All user variables deleted	*Cleanup*		DELVall	
F4	DELPall	Command	Delete all programs	Delete all user created programs and remove all assignments of all global labels used in the programs ; YESNO : Delete all programs? ; TI : All user programs deleted	*Cleanup*		DELPall	
F5	DELP	Command	Delete (current) program	Delete current program and remove all assignments of the global labels in the program (careful!) ; TAM : DELP _ TamLblOnly menu	*Cleanup*		DELP	
F6	DELBkup	Command	Delete Backup	Delete configuration backup file (LOAD, SAVE) ; YESNO : Delete both backup files?	*Cleanup*		DELBkup	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	DELITM	MENU (item)	Delete items	Delete user defined items (and their assignments), selected from category (programs - will also remove all assignments of the global labels in the program ; variables ; user defined menus) ; Trailing : DELITM_ menu DELITM ; Info : User menus can be defined using ASSIGN	*Cleanup*		DELITM	

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p1	DELETE	Link
F1	DELall	
F2	DELMall	
F3	DELVall	
F4	DELPall	
F5	DELP	
F6	DELBkup	
f F1		
f F2		
f F3		
f F4		
f F5		
f F6		
g F1		
g F2		
g F3		
g F4		
g F5		
g F6	DELITM	https://47calc.com/doc/R47/Menus/R47v0_Menu_DELITM_page_1.pdf

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DELITM	Delete items					
g-shift						
f-shift						
unshifted				PROGS	VARS	MENUS
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DELITM	MENU (item)	Delete items	Delete user defined items (and their assignments), selected from category (programs - will also remove all assignments of the global labels in the program ; variables ; user defined menus) ; Trailing : DELITM_ menu DELITM ; Info : User menus can be defined using ASSIGN	*Cleanup*		DELITM	
F1								
F2								
F3								
F4	PROGS	MENU (ASM)	Programs	Auto-generated catalog of programs	*Catalog*		PROGS	
F5	VARS	MENU	Variables	Auto-generated variable catalogs	*Catalog*		VARS	
F6	MENUS	MENU (ASM)	Menus	Catalog of all menus (including user defined menus) ; Info : Type characters 1-2 to search ; Ref : https://47calc.com/doc/R47/Reference/R47v0_CAT-MENUS.pdf	*Catalog*		MENUS	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	DELITM	Link
F1		
F2		
F3		
F4	PROGS	https://47calc.com/doc/R47/Menus/R47v0_Menu_PROGS_page_1.pdf
F5	VARS	https://47calc.com/doc/R47/Menus/R47v0_Menu_VARS_page_1.pdf
F6	MENUS	https://47calc.com/doc/R47/Menus/R47v0_Menu_MENUS_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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DEV	Developer menu					
g-shift						
f-shift						
unshifted	HP35	47	JM	RJ		
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DISP_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DEV	MENU (hidden)	Developer menu	Developer menu	*Developer*			
F1	HP35	Setting (group)	Set HP-35 tribute profile	Set HP-35 tribute profile ; Info : The current configuration is stored in register 35 when setting the HP-35 tribute profile	*Developer*			OFF
F2	47	Setting (group)	Return from HP-35 to R47 profile	Return from HP-35 tribute to R47 profile ; Info : The configuration is restored from register 35 where it was stored by setting the HP-35 tribute profile	*Developer*			ON
F3	JM	Setting (group)	Set JM profile	Set JM profile ; Info : JM is one of the C47/R47 developers	*Developer*			OFF
F4	RJ	Setting (group)	Set RJ profile	Set RJ profile ; Info : RJ is one of the C47/R47 developers	*Developer*			OFF
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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DISP	Display settings					
g-shift	IPART␣	RADIX.	FPART␣	FDIGS$_{34}$	FRCYC ◻	TDISP$_{0}$
f-shift	FRACT ◻	IRFRAC ◻	PROPFR ⊡	DMX$_{64}$	DENANY ◻	DENFIX ◻
unshifted	FIX ○	SCI ○	ENG ○	UNIT ○	SIG ○	ALL$_{3}$ ⊙
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Regional.pdf

Ref 3 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DISP	MENU	Display settings	Display settings ; Info : On DISP page 3, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Display*		DISP	
F1	FIX ○	Setting (pgm)	FIXed notation	Set numeric display mode to fixed notation with nn decimals (NDEC = nn = 0-19 ; DF = 1) ; TAM : FIX __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		FIX ○	OFF
F2	SCI ○	Setting (pgm)	SCIentific notation	Set numeric display mode to scientific notation with nn decimals = nn+1 digits (NDEC = nn = 0-19 ; DF = 2) ; TAM : SCI __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		SCI ○	OFF
F3	ENG ○	Setting (pgm)	ENGineering notation	Set numeric display mode to engineering notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 3) ; TAM : ENG __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		ENG ○	OFF
F4	UNIT ○	Setting (pgm)	Unit (prefix) notation	Set numeric display mode to unit (prefix) notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 5) ; showing all or limited set of SI-prefixes depending on flag PFX.All ; if flag 1024^n is SET, binary prefixes are shown if available and long integer values are indicated by ℤ: ; prefixes can be selected directly from menu Prefix ; TAM : UNIT __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*	1024^n	UNIT ○	OFF
F5	SIG ○	Setting (pgm)	SIGnificant digits notation	Set numeric display mode to significant digits notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 4) ; switching over to scientific or engineering notation when number of rounded trailing zeros exceeds group size (IPGRP) ; TAM : SIG __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		SIG ○	OFF
F6	ALL_3 ⊙	Setting (pgm)	All digits notation	Set numeric display mode to ALL digits notation ; display all digits as far as possible with maximum nn decimal zeros (NDEC = nn = 0-19 ; DF = 0) ; TAM : ALL __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		ALL_3 ⊙	3
fF1	FRACT ◻	Setting	Fractions mode	Switch on fractions mode ; not programmable - in PEM, use flag FRACT ; Info : FRACT and IRFRAC are linked (both cannot be ON at the same time ; /n or /max denotes maximum denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMXX)) ; prefixes < and > may be shown as needed for rational fractions ; also see flag IRFRAC ; SBI : a^b/n ; $^b/n$; [+≈]	*Fractions*	FRACT	FRACT ◻	OFF
fF2	IRFRAC ◻	Setting	Irrational fractions mode	Switch on irrational fractions mode ; not programmable - in PEM, use flag IRFRAC ; Info : IRFRAC and FRACT are linked (both cannot be ON at the same time ; SBI ×I or ·I indicates that approximate multiples or fractions can be used, of the irrational numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ, π^{-2}, π^{-1}, $\sqrt{\pi}$, π, π^2, e^{-2}, e^{-1}, e and e^2 (with tolerance 10^{-24}) ; Prefix ≈ + <approximation> ; multiplication symbol SET for displaying multiplication symbol ×; CLEAR for displaying multiplication symbol · or SET for displaying multiplication symbol ×; CLEAR for displaying multiplication symbol · according to flag MULT× ; SBI ≈ indicates FDIGS < 34; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]) ; SBI : $a^b/c×I$; $^b/c×I$; [+≈]	*Fractions*	IRFRAC	IRFRAC ◻	OFF
fF3	PROPFR ◘	Setting	Proper fractions	Switch on proper fractions (mixed fractions) ; not programmable - in PEM, use flag PROPFR ; SBI : a^b/n ; $^b/n$; [+≈] ; $a^b/c×I$; $^b/c×I$; [+≈]	*Fractions*	PROPFR	PROPFR ◘	ON
fF4	DMX_{64}	Setting (pgm)	Set max denominator for fractions [TAM]	Set max denominator for fractions [TAM variant] ; maximum value of 32500 is set by button DMXmax on [TamNonRegMax.1]F2, stored as 0 and displayed as DMX_{max} ; TAM : DMX ____ TamNonRegMax menu ; range is [2, 9999] or 0, indicating DMXmax = 32500 ; SBI is shown if flag SBfrac is SET ; SBI : /nnnn ; /max	*Fractions*		DMX_{64}	64
fF5	DENANY ◻	Setting	Denominator any	Switch on any denominator (up to value set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMXX)) in fraction display mode ; not programmable - in PEM, use flag DENANY ; Info : DENANY and DENFIX are linked (both cannot be ON at the same time ; SBI [+×] is shown if flag SBfrac is SET ; SBI : [+×]	*Fractions*	DENANY	DENANY ◻	OFF

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
fF6	DENFIX ◻	Setting	Denominator fixed	Switch on fixed denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMXX)) in fraction display mode ; not programmable - in PEM, use flag DENFIX ; Info : DENFIX and DENANY are linked (both cannot be ON at the same time ; SBI [+f] is shown if flag SBfrac is SET ; SBI : [+f]	*Fractions*	DENFIX	DENFIX ◻	OFF
gF1	IPART␣	MENU (item, nonpgm)	Select IP separator	Select integer part separator ; button label showing current separator (␣) ; symbol ø for no separator ; Info : CAT.MENUS IPART	*Display*		IPART	
gF2	RADIX.	MENU (item, nonpgm)	Select radix	Select radix ; button label showing current radix (.) ; Info : CAT.MENUS RADIX	*Display*		RADIX	
gF3	FPART␣	MENU (item, nonpgm)	Select FP separator	Select fractional part separator ; button label showing current separator (␣) ; symbol ø for no separator ; Info : CAT.MENUS FPART	*Display*		FPART	
gF4	$FDIGS_{34}$	Setting (pgm)	Set significant digits for fractions	Set the number of significant digits (1-34) used by the approximations of the fraction modes ; SBI ≈ indicates fractions can be approximated to be close enough (displayed if FDIGS < 34) ; TAM : FDIGS __ TamNonReg menu ; Info : SBI [+≈] is shown if flag SBfrac is SET ; SBI : [+≈]	*Fractions*	SBfrac	$FDIGS_{34}$	34
gF5	FRCYC ◻	Setting	Fraction mode full cycle	Switch on full cycle on key a b/c (g[.]) ; not programmable - in PEM, use flag FRCYC ; Info : When FRCYC is ON full cycle is available, when OFF, flag PROPFR is excluded (used as is) and OFF state is included in cycle	*Fractions*	FRCYC	FRCYC ◻	OFF
gF6	$TDISP_0$	Setting (pgm)	Time display format	Set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; TAM : TDISP _ TamNonReg menu	*Display*		$TDISP_0$	0

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p1	DISP	Link
F1	FIX ○	
F2	SCI ○	
F3	ENG ○	
F4	UNIT ○	
F5	SIG ○	
F6	ALL_3 ⊙	
fF1	FRACT ◻	
fF2	IRFRAC ◻	
fF3	PROPFR ◙	
fF4	DMX_{64}	
fF5	DENANY ◻	
fF6	DENFIX ◻	
gF1	IPART␣	https://47calc.com/doc/R47/Menus/xxx1.pdf
gF2	RADIX.	https://47calc.com/doc/R47/Menus/xxx1.pdf
gF3	FPART␣	https://47calc.com/doc/R47/Menus/xxx1.pdf
gF4	$FDIGS_{34}$	
gF5	FRCYC ◻	
gF6	$TDISP_0$	

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DISP	Display settings					
g-shift	SCIOVR ⊙	ENGOVR ○	SIGD ⊡		RNG$_{6145}$	HIDE$_0$
f-shift	CPXi ⊙	CPXj ○		CPXmul □	MULT× ⊙	MULT· ○
unshifted	dLrgLI ⊡	dZ.0 □	dSTACK$_4$	dSI$_2$	dBASE$_0$	DTSET
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DISP_page_3.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Regional.pdf

Ref 3 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	DISP	MENU	Display settings	Display settings ; Info : On DISP page 3, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Display*		DISP	
F1	dLrgLI ▣	Setting	Large Long integers display	Switch on (large) Long integers to always display in large text ; not programmable - in PEM, use flag dLrgLI ; Info : dLrgLI is overruled by dZ.0	*Display*	dLrgLI	dLrgLI ▣	ON
F2	dZ.0 □	Setting	Display Long integers as Real	Switch on displaying Long integers as Real ; not programmable - in PEM, use flag dZ.0 ; Info : dZ.0 overrules dLrgLI ; Prefix : ℤ : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "ℤ:" even if dZ.0 is CLEAR ; button shows current radix preference	*Integers*	dZ.0	dZ.0 □	OFF
F3	dSTACK$_4$	Setting (pgm)	Stack display lines	Set the number of stack registers to be displayed ; TAM : dSTACK _ TamNonReg menu	*Stack*		dSTACK$_4$	4
F4	dSI$_2$	Setting (pgm)	Short integer split screen lines	Set the short integer split screen lines for the display of X in #BASE Mode ; TAM : dSI _ TamNonReg menu ; Info : Range is 0 : <none> ; 1 : HEX ; 2 : HEX/DEC ; 3 : HEX/BIN/DEC ; if flag BCD is SET, instead of HEX, BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Number bases*	BCD	dSI$_2$	2
F5	dBASE$_0$	Setting (pgm)	Base number display	Display long integer in X as base number in the T-line (base 2-62) ; exit by entering dBASE 0 ; TAM : dBASE __ TamNonReg menu ; Split screen : Displaying X:ℤ: <value>$_{bb}$; Ref : https://47calc.com/doc/R47/Reference/R47v0_Base_digits.pdf	*Number bases*		dBASE$_0$	0
F6	DTSET	MENU (item)	Date and time settings	Activate menu CLK page 2 to access date and time settings ; Info : Previews/OPENM as CLK↵^{2}	*Time functions*		CLK↵^{2}	
fF1	CPXi ⊙	Setting (pgm)	Imaginary i	Switch on displaying i as the imaginary number ; Info : i or j displayed in stack and on soft buttons	*Complex numbers*	CPXj	CPXi ⊙	ON
fF2	CPXj ○	Setting (pgm)	Imaginary j	Switch on displaying j as the imaginary number ; Info : i or j displayed in stack and on soft buttons	*Complex numbers*	CPXj	CPXj ○	OFF
fF3								
fF4	CPXmul □	Setting	Complex multiplier	Switch on displaying Complex multiplier ; not programmable - in PEM, use flag CPXmul ; Info : If OFF, trailing i or j is used ; complex multiplier is set by MULT×	*Complex numbers*	CPXmul	CPXmul □	OFF
fF5	MULT× ⊙	Setting (pgm)	Multiplication symbol ×	Switch on displaying multiplication symbol ×	*Display*	MULT×	MULT× ⊙	ON
fF6	MULT· ○	Setting (pgm)	Multiplication symbol ·	Switch on displaying multiplication symbol ·	*Display*	MULT×	MULT· ○	OFF
gF1	SCIOVR ⊙	Setting (pgm)	Scientific display large Real numbers	Switch on displaying large Real numbers in scientific notation	*Display*	ENGOVR	SCIOVR ⊙	ON
gF2	ENGOVR ○	Setting (pgm)	Engineering display large Real numbers	Switch on displaying large Real numbers in engineering notation	*Display*	ENGOVR	ENGOVR ○	OFF
gF3	SIG0 ▣	Setting (pgm)	Apply SIG zeros	Switch on applying SIG zeros ; Info : 'Apply SIG zeros' means displaying zeros for the integer part and trailing zeros for the fractional part ; zeros are required for the strict interpretation of SIG as implemented in prior C47/C43 and WP34S ; if SIG0 is CLEAR, SIG may be understood as 'maximum digits' and displays the resulting value in a more commonly used way	*Display*	SIG0	SIG0 ▣	ON
gF4								
gF5	RNG$_{6145}$	Setting (pgm)	Set number range	Set number range as 10^{nn}, where nn in [99, 6145] ; TAM : RNG ____ TamNonReg menu ; Info : numbers smaller than 10^{-RNG} (or the value set by HIDE) will be displayed as ≈0. ; numbers greater than 10^{RNG} will be displayed as 'ω' (or ∞ if RNG is 6145 and provided flag SPCRES is SET)	*Reals*	SPCRES	RNG$_{6145}$	6145
gF6	HIDE$_0$	Setting (pgm)	Set hide parameter	Set parameter to hide small Real numbers or parts ; display ≈0. for numbers with absolute values < 10^{-n}, where n in [12, 99] ; useful e.g. in matrices ; reset by HIDE 0 ; when menu XFCNS is open, setting HIDE is ignored ; TAM : HIDE _ TamNonReg menu ; Info : numbers smaller than the range specified by RNG are also displayed as ≈0.	*Display*		HIDE$_0$	0

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p2	DISP	Link
F1	dLrgLI ⊞	
F2	dZ.0 □	
F3	dSTACK$_4$	
F4	dSI$_2$	
F5	dBASE$_0$	
F6	DTSET	https://47calc.com/doc/R47/Menus/R47v0_Menu_DTSET_page_1.pdf
fF1	CPXi ⊙	
fF2	CPXj ○	
fF3		
fF4	CPXmul □	
fF5	MULT× ⊙	
fF6	MULT· ○	
gF1	SCIOVR ⊙	
gF2	ENGOVR ○	
gF3	SIGD ⊞	
gF4		
gF5	RNG$_{6145}$	
gF6	HIDE$_0$	

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DISP	Display settings					
g-shift						
f-shift						DEFLT ◈
unshifted	CHINA ◇	EUROP ◇	INDIA ◇	JAPAN ◇	UK ◇	USA ◇
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DISTR_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Regional.pdf

Ref 3 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	DISP	MENU	Display settings	Display settings ; Info : On DISP page 3, special indicators are used : ◈ : all group settings comply, ◇ : ≥1 group settings differ ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Display*		DISP	
F1	CHINA ◇	Setting (pgm)	Chinese formatting	Set to Chinese regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 1949-10-01 ; Week of Year rule set: Monday.Thursday	*Display*		S.CHN ◇	OFF
F2	EUROP ◇	Setting (pgm)	European formatting	Set to European regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 15.10.1582 ; Week of Year rule set: Monday.Thursday	*Display*		S.EUR ◇	OFF
F3	INDIA ◇	Setting (pgm)	Indian formatting	Set to Indian regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 14.09.1752 ; Week of Year rule set: Sunday.Saturday	*Display*		S.IND ◇	OFF
F4	JAPAN ◇	Setting (pgm)	Japanese formatting	Set to Japanese regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 1873-01-01 ; Week of Year rule set: Sunday.Saturday	*Display*		S.JPN ◇	OFF
F5	UK ◇	Setting (pgm)	UK formatting	Set to UK regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 14.09.1752 ; Week of Year rule set: Monday.Thursday	*Display*		S.UK ◇	OFF
F6	USA ◇	Setting (pgm)	USA formatting	Set to USA regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 09/14/1752 ; Week of Year rule set: Sunday.Saturday	*Display*		S.USA ◇	OFF
fF1								
fF2								
fF3								
fF4								
fF5								
fF6	DEFLT ◈	Setting (pgm)	Default regional formatting	Set to default regional formats (date, time, calendar, number formatting) ; TI : First Gregorian day set: 1752-09-14 ; Week of Year rule set: Monday.Thursday	*Display*		S.DFLT ◈	ON
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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DISTR	Distributions					
g-shift		DisUni:	Geom:	Hyper:	Poiss:	Binom:
f-shift	Φ:	Uniform:	Cauch:	Pareto:	Logis:	GEV:
unshifted	Norml:	χ^2:	t:	F:	Expon:	Weibl:
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Distr_param.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DISTR	MENU	Distributions	Probability distribution functions ; Split screen : Displaying <register> = <parameter> = <value> for the probability distribution submenus ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Distr_param.pdf	*Probability*		DISTR	
F1	Norml:	MENU	Normal & Log normal distribution	Normal & Log normal probability distribution (continuous) ; TI : RegM = μ = ; RegS = σ =	*Probability (real)*		Norml:	
F2	χ^2:	MENU	Chi-squared distribution	Chi-squared probability distribution (continuous) ; TI : RegM = ν =	*Probability (real)*		χ^2:	
F3	t:	MENU	Student's t distribution	Student's t probability distribution (continuous) ; TI : RegM = ν =	*Probability (real)*		t:	
F4	F:	MENU	Fisher's F distribution	Fisher's F probability distribution (continuous) ; TI : RegM = d_1 = ; RegN = d_2 =	*Probability (real)*		F:	
F5	Expon:	MENU	Exponential distribution	Exponential probability distribution (continuous) ; TI : RegR = λ =	*Probability (real)*		Expon:	
F6	Weibl:	MENU	Weibull distribution	Weibull probability distribution (continuous) ; TI : RegQ = k = ; RegS = λ =	*Probability (real)*		Weibl:	
fF1	Φ:	MENU	Standard normal distribution	Standard normal probability distribution (continuous) ; Info : mean = 0 ; standard deviation = 1	*Probability (real)*		Φ:	
fF2	Uniform:	MENU	Uniform distribution	Uniform probability distribution (continuous) ; TI : RegM = a = ; RegN = b =	*Probability (real)*		Uniform:	
fF3	Cauch:	MENU	Cauchy-Lorentz distribution	Cauchy-Lorentz probability distribution (continuous) ; TI : RegM = x_0 = ; RegS = γ =	*Probability (real)*		Cauch:	
fF4	Pareto:	MENU	Pareto distribution	Pareto probability distribution (continuous) -- see https://en.wikipedia.org/wiki/Pareto_distribution#Pareto_types_I–IV ; TI : RegM = μ = ; RegS = σ = ; RegQ = α =	*Probability (real)*		Pareto:	
fF5	Logis:	MENU	Logistic distribution	Logistic probability distribution (continuous) ; TI : RegM = μ = ; RegS = s =	*Probability (real)*		Logis:	
fF6	GEV:	MENU	Generalised extreme value distribution	Generalised extreme value probability distribution (continuous) ; TI : RegM = μ = ; RegS = σ = ; RegQ = ξ =	*Probability (real)*		GEV:	
gF1								
gF2	DisUni:	MENU	Discrete uniform distribution	Discrete uniform probability distribution (discrete) ; TI : RegM = a = ; RegN = b =	*Probability (int)*		DisUni:	
gF3	Geom:	MENU	Geometric distribution	Geometric probability distribution (discrete) ; TI : RegP = p =	*Probability (int)*		Geom:	
gF4	Hyper:	MENU	Hypergeometric distribution	Hypergeometric probability distribution (discrete) ; TI : RegM = N = ; RegN = n = ; RegQ = K =	*Probability (int)*		Hyper:	
gF5	Poiss:	MENU	Poisson distribution	Poisson probability distribution (discrete) -- see https://en.wikipedia.org/wiki/Poisson_distribution#Definitions ; TI : RegR = λ =	*Probability (int)*		Poiss:	
gF6	Binom:	MENU	Binomial & Negative binomial distribution	Binomial & Negative binomial probability distribution (discrete) ; TI : RegP = p = ; RegN = n =	*Probability (int)*		Binom:	

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p1	DISTR	Link
F1	Norml:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Norml_page_1.pdf
F2	χ^2:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Chi2_page_1.pdf
F3	t:	https://47calc.com/doc/R47/Menus/R47v0_Menu_t_page_1.pdf
F4	F:	https://47calc.com/doc/R47/Menus/R47v0_Menu_F_page_1.pdf
F5	Expon:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Expon_page_1.pdf
F6	Weibl:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Weibl_page_1.pdf
fF1	Φ:	https://47calc.com/doc/R47/Menus/R47v0_Menu_StdNorml_page_1.pdf
fF2	Uniform:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Uniform_page_1.pdf
fF3	Cauch:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Cauch_page_1.pdf
fF4	Pareto:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Pareto_page_1.pdf
fF5	Logis:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Logis_page_1.pdf
fF6	GEV:	https://47calc.com/doc/R47/Menus/R47v0_Menu_GEV_page_1.pdf
gF1		
gF2	DisUni:	https://47calc.com/doc/R47/Menus/R47v0_Menu_DisUni_page_1.pdf
gF3	Geom:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Geom_page_1.pdf
gF4	Hyper:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Hyper_page_1.pdf
gF5	Poiss:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Poiss_page_1.pdf
gF6	Binom:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Binom_page_1.pdf

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DisUni:	Discrete uniform distribution					
g-shift	STO_M a	STO_N b				
f-shift						
unshifted	$DisU_p$		$DisU_{\triangle}$	$DisU_{\triangle}$		$DisU^{-1}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DisUni:	MENU	Discrete uniform distribution	Discrete uniform probability distribution (discrete) ; TI : RegM = a = ; RegN = b =	*Probability (int)*		DisUni:	
F1	$DisU_p$	Function (monadic)	Discrete uniform pmf	Discrete uniform probability mass function	*Probability (int)*		$DisU_p$	
F2								
F3	$DisU_{\triangle}$	Function (monadic)	Discrete uniform cdf (lower)	Discrete uniform cumulative distribution (lower tail)	*Probability (int)*		$DisU_{\triangle}$	
F4	$DisU_{\triangle}$	Function (monadic)	Discrete uniform cdf (upper)	Discrete uniform cumulative distribution (upper tail)	*Probability (int)*		$DisU_{\triangle}$	
F5								
F6	$DisU^{-1}$	Function (monadic)	Discrete uniform qf (inverse)	Discrete uniform inverse cumulative distribution (quantile)	*Probability (int)*		$DisU^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M a	Command	Store a in M	Store parameter a : lower limit in register M ; Split screen : RegM = a =	*Probability (int)*			
gF2	STO_N b	Command	Store b in N	Store parameter b : upper limit in register N ; Split screen : RegN = b =	*Probability (int)*			
gF3								
gF4								
gF5								
gF6								

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Draw (PLFUNC)	Draw (variable limits)					
g-shift	-ZOOM$_0$	+ZOOM$_0$				
f-shift	X:Y=1 ◻	PLTRST				
unshifted	↓X $_{-10}$	↑X $_{10}$				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Draw (PLFUNC)	MENU (item)	Draw (variable limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set by variables (↓X , ↑X) and Y-axis limits by variables (↓Y , ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw	
F1	↓X $_{-10}$	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↓X' :	*Plotting*		↓X	-10
F2	↑X $_{10}$	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↑X' :	*Plotting*		↑X	10
F3								
F4								
F5								
F6								
fF1	X:Y=1 ◻	Setting	Forcing autoscale	Switch on forcing autoscale on x- and y-axis to be the same ; not programmable - in PEM, use flag PLxy:1	*Plotting*	PLxy:1		OFF
fF2	PLTRST	Command (PEM)	Reset plot	Reset all plot options and redraw graph ; Info : Resets options for lines, boxes, crosses, plusses and scaling ; PLTRST also resets ↓Y and ↑Y to zero	*Plotting*		PLTRST	
fF3								
fF4								
fF5								
fF6								
gF1	-ZOOM$_0$	Command	Zoom out on y-axis	Decrease zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; -ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF2	+ZOOM$_0$	Command	Zoom in on y-axis	Increase zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; +ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF3								
gF4								
gF5								
gF6								

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Draw (PLFUNC)	Draw (variable limits)					
g-shift	Graphs	SNAP				
f-shift	CXPLT ◻	IMPLT ◻				
unshifted	X.AXIS ◻	Y.AXIS ◻				
Page 2	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	Draw (PLFUNC)	MENU (item)	Draw (variable limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set by variables (↓X, ↑X) and Y-axis limits by variables (↓Y, ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw	
F1	X.AXIS ◻	Setting	Autoscaling to show x-axis	Switch on autoscaling to show x-axis ; not programmable - in PEM, use flag PLx.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLx.ax		OFF
F2	Y.AXIS ◻	Setting	Autoscaling to show y-axis	Switch on autoscaling to show y-axis ; not programmable - in PEM, use flag PLy.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLy.ax		OFF
F3								
F4								
F5								
F6								
fF1	CXPLT ◻	Setting	Complex plot	Switch on Complex plot ; not programmable - in PEM, use flag PLcxp ; Info : CXPLT and IMPLT are linked (both cannot be ON at the same time	*Plotting*	PLcxp		OFF
fF2	IMPLT ◻	Setting	Plot imaginary part	Switch on plotting imaginary part ; not programmable - in PEM, use flag PLimp ; Info : IMPLT and CXPLT are linked (both cannot be ON at the same time	*Plotting*	PLimp		OFF
fF3								
fF4								
fF5								
fF6								
gF1	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
gF2	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
gF3								
gF4								
gF5								
gF6								

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p2	Draw (PLFUNC)	Link
F1	X.AXIS ◻	
F2	Y.AXIS ◻	
F3		
F4		
F5		
F6		
fF1	CXPLT ◻	
fF2	IMPLT ◻	
fF3		
fF4		
fF5		
fF6		
gF1	Graphs	https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf
gF2	SNAP	
gF3		
gF4		
gF5		
gF6		

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Draw (PLFUNC)	Draw (variable limits)					
g-shift	~~CURVE ◘~~	LISTXY				
f-shift	LINE ◙	BOX ◙				
unshifted	CROSS ◘	PLUS ◘				
Page 3	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	Draw (PLFUNC)	MENU (item)	Draw (variable limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set by variables (↓X , ↑X) and Y-axis limits by variables (↓Y , ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw	
F1	CROSS ◻	Setting	Cross markers	Switch on cross markers ; not programmable - in PEM, use flag PLcros ; Info : If CROSS is switched ON, BOX and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLcros		OFF
F2	PLUS ◻	Setting	Plus markers	Switch on plus markers ; not programmable - in PEM, use flag PLplus ; Info : If PLUS is switched ON, BOX and CROSS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLplus		OFF
F3								
F4								
F5								
F6								
fF1	LINE ◙	Setting	Draw line	Switch on connecting graph points using line segments ; not programmable - in PEM, use flag PLline ; Info : if LINE is switched OFF, BOX may be switched ON if necessary (when no curve markers are selected)	*Plotting*	PLline		ON
fF2	BOX ◙	Setting	Box markers	Switch on box markers ; not programmable - in PEM, use flag PLbox ; Info : If BOX is switched ON, CROSS and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLbox		ON
fF3								
fF4								
fF5								
fF6								
gF1	~~CURVE ◘~~	Setting (strike)	[future] Curve smoothing	Switch on [future] curve smoothing ; not programmable - in PEM, use flag PLcurve ; Info : Reserved for future use	*Plotting*	PLcurve		OFF
gF2	LISTXY	Command	List graph coordinates	List the actual STATS graph coordinates (7 digit floating point)	*Plotting*			
gF3								
gF4								
gF5								
gF6								

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Draw (PLFUNC)	Draw (variable limits)					
g-shift	N.VECT ◻	VECT ◻				
f-shift	RMS ◻	∫AREA ◻				
unshifted	Δy/Δx ◻	Σȳ∆x ◻				
Page 4	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_DrawYX_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	Draw (PLFUNC)	MENU (item)	Draw (variable limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set by variables (↓X, ↑X) and Y-axis limits by variables (↓Y, ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw	
F1	Δy/Δx ◻	Setting	Add differential curve	Switch on adding the graphical point-to-point differential of the main graph ; not programmable - in PEM, use flag PLdiff ; Info : Δ Numerical slope is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLdiff		OFF
F2	Σȳ∆x ◻	Setting	Add integral curve	Switch on adding the graphical integral curve, calculated from the point-to-point discrete integral ; not programmable - in PEM, use flag PLintg ; Info : Vertical placement of the integral is at RMS of the graph points ; ∫◻ Trapezoid integral is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLintg		OFF
F3								
F4								
F5								
F6								
fF1	RMS ◻	Setting	Add RMS curve	Switch on adding the graphical root mean square curve, accumulated from left to right ; not programmable - in PEM, use flag PLrms ; Info : ■ Root mean square RMS is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLrms		OFF
fF2	∫AREA ◻	Setting	Shade curve	Switch on shading the trapezoid integral from the graph points ; not programmable - in PEM, use flag PLshad ; Info : ∫◻ Trapezoid integral is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLshad		OFF
fF3								
fF4								
fF5								
fF6								
gF1	N.VECT ◻	Setting	Clockwise vectors	Switch on clockwise vectors ; not programmable - in PEM, use flag PLnvec ; Info : N.VECT and VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLnvec		OFF
gF2	VECT ◻	Setting	Anti-clockwise vectors	Switch on anti-clockwise vectors ; not programmable - in PEM, use flag PLvec ; Info : VECT and N.VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLvec		OFF
gF3								
gF4								
gF5								
gF6								

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Draw$^{x}_{y}$ (PLFUNC)	Draw (stack limits)					
g-shift	-ZOOM$_0$	+ZOOM$_0$				
f-shift	X:Y=1 ◻	PLTRST				
unshifted	↓X $_{-10}$	↑X $_{10}$				
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Draw$^{x}_{y}$ (PLFUNC)	MENU (item)	Draw (stack limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set from stack (Y, X) and Y-axis limits by variables (↓Y , ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw$^{x}_{y}$	
F1	↓X $_{-10}$	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↓X' :	*Plotting*		↓X	-10
F2	↑X $_{10}$	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↑X' :	*Plotting*		↑X	10
F3								
F4								
F5								
F6								
fF1	X:Y=1 ◻	Setting	Forcing autoscale	Switch on forcing autoscale on x- and y-axis to be the same ; not programmable - in PEM, use flag PLxy:1	*Plotting*	PLxy:1		OFF
fF2	PLTRST	Command (PEM)	Reset plot	Reset all plot options and redraw graph ; Info : Resets options for lines, boxes, crosses, plusses and scaling ; PLTRST also resets ↓Y and ↑Y to zero	*Plotting*		PLTRST	
fF3								
fF4								
fF5								
fF6								
gF1	-ZOOM$_{0}$	Command	Zoom out on y-axis	Decrease zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; -ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF2	+ZOOM$_{0}$	Command	Zoom in on y-axis	Increase zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; +ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF3								
gF4								
gF5								
gF6								

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Draw$^{x}_{y}$ (PLFUNC)	Draw (stack limits)					
g-shift	Graphs	SNAP				
f-shift	CXPLT ◘	IMPLT ◘				
unshifted	X.AXIS ◘	Y.AXIS ◘				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	Draw$^{x}_{y}$ (PLFUNC)	MENU (item)	Draw (stack limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set from stack (Y, X) and Y-axis limits by variables (↓Y, ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw$^{x}_{y}$	
F1	X.AXIS ◻	Setting	Autoscaling to show x-axis	Switch on autoscaling to show x-axis ; not programmable - in PEM, use flag PLx.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLx.ax		OFF
F2	Y.AXIS ◻	Setting	Autoscaling to show y-axis	Switch on autoscaling to show y-axis ; not programmable - in PEM, use flag PLy.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLy.ax		OFF
F3								
F4								
F5								
F6								
fF1	CXPLT ◻	Setting	Complex plot	Switch on Complex plot ; not programmable - in PEM, use flag PLcxp ; Info : CXPLT and IMPLT are linked (both cannot be ON at the same time	*Plotting*	PLcxp		OFF
fF2	IMPLT ◻	Setting	Plot imaginary part	Switch on plotting imaginary part ; not programmable - in PEM, use flag PLimp ; Info : IMPLT and CXPLT are linked (both cannot be ON at the same time	*Plotting*	PLimp		OFF
fF3								
fF4								
fF5								
fF6								
gF1	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
gF2	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
gF3								
gF4								
gF5								
gF6								

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p2	Draw$^{x}_{y}$ (PLFUNC)	Link
F1	X.AXIS ◘	
F2	Y.AXIS ◘	
F3		
F4		
F5		
F6		
fF1	CXPLT ◘	
fF2	IMPLT ◘	
fF3		
fF4		
fF5		
fF6		
gF1	Graphs	https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf
gF2	SNAP	
gF3		
gF4		
gF5		
gF6		

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Draw$^{x}_{y}$ (PLFUNC)	Draw (stack limits)					
g-shift	~~CURVE ◘~~	LISTXY				
f-shift	LINE ◙	BOX ◙				
unshifted	CROSS ◘	PLUS ◘				
Page 3	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	Draw$^{x}_{y}$ (PLFUNC)	MENU (item)	Draw (stack limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set from stack (Y, X) and Y-axis limits by variables (↓Y , ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw$^{x}_{y}$	
F1	CROSS ◻	Setting	Cross markers	Switch on cross markers ; not programmable - in PEM, use flag PLcros ; Info : If CROSS is switched ON, BOX and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLcros		OFF
F2	PLUS ◻	Setting	Plus markers	Switch on plus markers ; not programmable - in PEM, use flag PLplus ; Info : If PLUS is switched ON, BOX and CROSS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLplus		OFF
F3								
F4								
F5								
F6								
fF1	LINE ◙	Setting	Draw line	Switch on connecting graph points using line segments ; not programmable - in PEM, use flag PLline ; Info : if LINE is switched OFF, BOX may be switched ON if necessary (when no curve markers are selected)	*Plotting*	PLline		ON
fF2	BOX ◙	Setting	Box markers	Switch on box markers ; not programmable - in PEM, use flag PLbox ; Info : If BOX is switched ON, CROSS and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLbox		ON
fF3								
fF4								
fF5								
fF6								
gF1	~~CURVE ◘~~	Setting (strike)	[future] Curve smoothing	Switch on [future] curve smoothing ; not programmable - in PEM, use flag PLcurve ; Info : Reserved for future use	*Plotting*	PLcurve		OFF
gF2	LISTXY	Command	List graph coordinates	List the actual STATS graph coordinates (7 digit floating point)	*Plotting*			
gF3								
gF4								
gF5								
gF6								

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Draw$^{x}_{y}$ (PLFUNC)	Draw (stack limits)					
g-shift	N.VECT ◻	VECT ◻				
f-shift	RMS ◻	∫AREA ◻				
unshifted	Δy/Δx ◻	Σȳ∆x ◻				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	Draw$^{x}_{y}$ (PLFUNC)	MENU (item)	Draw (stack limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set from stack (Y, X) and Y-axis limits by variables (↓Y, ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw$^{x}_{y}$	
F1	Δy/Δx ◻	Setting	Add differential curve	Switch on adding the graphical point-to-point differential of the main graph ; not programmable - in PEM, use flag PLdiff ; Info : Δ Numerical slope is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLdiff		OFF
F2	Σȳ∆x ◻	Setting	Add integral curve	Switch on adding the graphical integral curve, calculated from the point-to-point discrete integral ; not programmable - in PEM, use flag PLintg ; Info : Vertical placement of the integral is at RMS of the graph points ; ∫◻ Trapezoid integral is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLintg		OFF
F3								
F4								
F5								
F6								
fF1	RMS ◻	Setting	Add RMS curve	Switch on adding the graphical root mean square curve, accumulated from left to right ; not programmable - in PEM, use flag PLrms ; Info : ■ Root mean square RMS is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLrms		OFF
fF2	∫AREA ◻	Setting	Shade curve	Switch on shading the trapezoid integral from the graph points ; not programmable - in PEM, use flag PLshad ; Info : ∫◻ Trapezoid integral is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLshad		OFF
fF3								
fF4								
fF5								
fF6								
gF1	N.VECT ◻	Setting	Clockwise vectors	Switch on clockwise vectors ; not programmable - in PEM, use flag PLnvec ; Info : N.VECT and VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLnvec		OFF
gF2	VECT ◻	Setting	Anti-clockwise vectors	Switch on anti-clockwise vectors ; not programmable - in PEM, use flag PLvec ; Info : VECT and N.VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLvec		OFF
gF3								
gF4								
gF5								
gF6								

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DTSET (CLK)	Date and time settings					
g-shift	Date→D	Time→T	WOY	SECOND	MINUTE	HOUR
f-shift	SETDAT	SETTIM	WDAY	DAY	MONTH	YEAR
unshifted	CLK12 ○	CLK24 ◎	TDISP$_0$	DMY ○	MDY ○	YMD ◎
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	DTSET (CLK)	MENU (item)	Date and time settings	Activate menu CLK page 2 to access date and time settings ; Info : Previews/OPENM as CLK↵2	*Time functions*		CLK↵2	
F1	CLK12 ○	Setting (pgm)	12 hour clock	Switch on 12h time display ; Format : HH24:MM ; HH:MMam/pm ; Info : SBI is shown if flag SBtime is SET ; SBI : HH:MMam/pm	*Display*	TDM24	CLK12 ○	OFF
F2	CLK24 ◉	Setting (pgm)	24 hour clock	Switch on 24h time display ; Format : HH24:MM ; HH:MMam/pm ; Info : SBI is shown if flag SBtime is SET ; SBI : HH24:MM	*Display*	TDM24	CLK24 ◉	ON
F3	$TDISP_0$	Setting (pgm)	Time display format	Set time display format : 0 = full ; 1,2 = hours/minutes ; 3 = hours/minutes/seconds ; 4,5,6 = 1,2,3 decimal places for the seconds ; TAM : TDISP _ TamNonReg menu	*Display*		$TDISP_0$	0
F4	DMY ○	Setting (pgm)	Day.month.year	Switch on DD.MM.YYYY display mode ; Format : DD.MM.YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : DD.MM.YYYY	*Display*	DMY	DMY ○	OFF
F5	MDY ○	Setting (pgm)	Month/day/year	Switch on MM/DD/YYYY display mode ; Format : MM/DD/YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : MM/DD/YYYY	*Display*	MDY	MDY ○	OFF
F6	YMD ◉	Setting (pgm)	Year-month-day	Switch on YYYY-MM-DD display mode ; Format : YYYY-MM-DD ; Info : SBI is shown if flag SBdate is SET ; SBI : YYYY-MM-DD	*Display*	YMD	YMD ◉	ON
fF1	SETDAT	Setting (pgm, HW)	Set date	Set date ; hardware only (DMCP setting) ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Time functions*		SETDAT	
fF2	SETTIM	Setting (pgm, HW)	Set time	Set time ; hardware only (DMCP setting) ; Info : Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Time functions*		SETTIM	
fF3	WDAY	Function (monadic)	Day of week number (ISO)	Day of week number (ISO, of date in X) regardless of Week of Year rule set ; TI : [ISO day] Weekday	*Time functions*		WDAY	
fF4	DAY	Function (monadic)	Day	Day (of date in X)	*Time functions*		DAY	
fF5	MONTH	Function (monadic)	Month	Month (of date in X)	*Time functions*		MONTH	
fF6	YEAR	Function (monadic)	Year	Year (of date in X)	*Time functions*		YEAR	
gF1	Date→D	Command	Date	Current date ; TI : Weekday (shown for dates in X, Y, Z)	*Time functions*		Date→D	
gF2	Time→T	Command	Time	Current time	*Time functions*		Time→T	
gF3	WOY	Function (monadic)	Week of Year	Week of Year (of date in X) according to rule set (default : WOY_{ISO}) ; TI : Week of Year =	*Time functions*		WOY	
gF4	SECOND	Function (monadic)	Seconds	Seconds (of time in X)	*Time functions*		SECOND	
gF5	MINUTE	Function (monadic)	Minutes	Minutes (of time in X)	*Time functions*		MINUTE	
gF6	HOUR	Function (monadic)	Hours	Hours (of time in X)	*Time functions*		HOUR	

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EDIT (EQ_EDIT)	Edit equation					
g-shift						
f-shift	CAPS ◻	NUM ◻	$^{SUP}_{SUB}$ ◻	:	(	)
unshifted	e^x	x	^	√	←	→
Page 1	F1	F2	F3	F4	F5	F6

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Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	EDIT (EQ_EDIT)	Command (submnu)	Edit equation	Open equation editor menu to edit equation (previous equation loaded) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.EDIT	
F1	e^x	Symbol	*e* to the power x	*e* to the power x	*Mathematics and characters*			
F2	x	Symbol	Variable x	Variable x	*Equations*			
F3	^	Symbol	Raise to power	Raise to power ; Shortcut : alpha g[y^x] ; Info : Fontcode : $005E_{16}$	*Mathematics and characters*			
F4	√	Symbol	Square root	Square root ; Shortcut : alpha g[$\sqrt{x}$] ; Info : Fontcode : $221A_{16}$	*Mathematics and characters*			
F5	←	Arrow	Move cursor left	Move cursor left	*Navigation*			
F6	→	Arrow	Move cursor right	Move cursor right	*Navigation*			
fF1	CAPS ◻	Setting	Alpha capslock	Switch on alpha capslock ; not programmable ; Shortcut : alpha f[↑] / alpha f[↓] ; Info : sets initial case of menu A...Ω/α...ω and αINTL/αintl ; toggling alpha capslock clears Numlock ; SBI : A ; a	*Text input*	αCAP		OFF
fF2	NUM ◻	Setting	Numlock	Switch on numlock ; not programmable - in PEM, use flag NUM ; Shortcut : alpha f[↑] / alpha f[↓] ; SBI : *N*	*Numeric input*	NUM		OFF
fF3	$^{SUP}{}_{SUB}$ ◻	Setting (cyclic)	Normal-super-subscript	Cycle normal-super-subscript (locking) ; Shortcut : alpha g[↑] / alpha g[↓] ; Info : button shows $^{SUP}{}_{SUB}$; α^{SUP} ; α_{SUB} ; SBI : ${}_{A}A^{A}$; ${}_{a}a^{a}$; ${}_{N}N^{N}$	*Text input*			Normal
fF4	:	Character	Colon	Character : ; in the equation editor, the colon can be used to name an expression (<name> : <expression>) ; Shortcut : alpha f[R/S] ; Fontcode : $003A_{16}$	*Characters*			
fF5	(	Symbol	Left parenthesis	Open (left) parenthesis ; Fontcode : 0028_{16}	*Mathematics and characters*			
fF6	)	Symbol	Right parenthesis	Close (right) parenthesis ; Fontcode : 0029_{16}	*Mathematics and characters*			
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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EDIT (EQ_EDIT)	Edit equation					
g-shift						
f-shift	ASIN	ACOS	ATAN	*i*	|	∡
unshifted	SIN	COS	TAN	π	←	→
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Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	EDIT (EQ_EDIT)	Command (submnu)	Edit equation	Open equation editor menu to edit equation (previous equation loaded) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.EDIT	
F1	SIN	Function (monadic)	Sine	Sine	*Trigonometry*		SIN	
F2	COS	Function (monadic)	Cosine	Cosine	*Trigonometry*		COS	
F3	TAN	Function (monadic)	Tangent	Tangent	*Trigonometry*		TAN	
F4	π	Symbol	pi	Mathematical symbol π ; Shortcut : alpha g[R↓] ; Info : Fontcode : $03C0_{16}$; press [↑] for Π at [A...Ω.1] g F5	*Mathematics and characters*			
F5	←	Arrow	Move cursor left	Move cursor left	*Navigation*			
F6	→	Arrow	Move cursor right	Move cursor right	*Navigation*			
f F1	ASIN	Function (monadic)	Arc sine	Inverse sine ; Info : Returns the principal value of the inverse sine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCSIN	
f F2	ACOS	Function (monadic)	Arc cosine	Inverse cosine ; Info : Returns the principal value of the inverse cosine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCCOS	
f F3	ATAN	Function (monadic)	Arc tangent	Inverse tangent ; Info : Returns the principal value of the inverse tangent of X ; if flag SPCRES is SET, infinity input is allowed and the range is extended to [-90°, 90°] (inclusive)	*Trigonometry*	SPCRES	ARCTAN	
f F4	i	Symbol	Imaginary unit	Mathematical symbol i ; Info : Displayed according to flag CPXj	*Complex numbers*	CPXj		
f F5	|	Symbol	Bar	Open or close absolute value ; Shortcut : alpha g[STO] ; Info : Fontcode : $007C_{16}$	*Mathematics and characters*			
f F6	∡	Function (monadic)	Argument (angle)	Argument (angle) of ℂomplex number	*Complex numbers*		∡	
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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EDIT (EQ_EDIT)	Edit equation					
g-shift						
f-shift	=					
unshifted	!	Poly4	X.EDIT	X.SWAP	←	→
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Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	EDIT (EQ_EDIT)	Command (submnu)	Edit equation	Open equation editor menu to edit equation (previous equation loaded) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.EDIT	
F1	!	Symbol	Exclamation mark	In edit equation, used as Factorial x! or Γ(x+1) ; Shortcut : alpha g[^{1}/x] ; Info : Fontcode : 0021_{16}	*Mathematics and characters*			
F2	Poly4	Function (monadic)	Polynomial 4th degree	Create polynomial : a4 × x^4 + a3 × x^3 + a2 × x^2 +a1 × x + a0	*Mathematics*			
F3	X.EDIT	Command	Edit X	Edit contents of stack register X as text ; Shortcut : alpha long [ENTER] ; EIM long [ENTER]	*Text input*		X.EDIT	
F4	X.SWAP	Command	Swap X	Swap contents of X register with input of alpha buffer or equation editor	*Text input*		X.SWAP	
F5	←	Arrow	Move cursor left	Move cursor left	*Navigation*			
F6	→	Arrow	Move cursor right	Move cursor right	*Navigation*			
fF1	=	Symbol	Equal	Equal ; Info : Fontcode : $003D_{16}$	*Mathematics and characters*			
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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EDIT (M_EDIT)	Edit matrix					
g-shift	DELR	DELC			WRAP ⊙	GROW ○
f-shift	INSR	INSC	$i_{\odot}$	OLD	↑	↓
unshifted	ROW+1	COL+1	i	GOTO	←	→
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	EDIT (M_EDIT)	MENU (item, nonpgm)	Edit matrix	Open matrix editor for matrix in X ; Info : CAT.MENUS M_EDIT ; MIM = Matrix Input Mode ; [↑] or [↓] to move up or down one position ; Ref : 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead	*Matrix operations*		M.EDIT	
F1	ROW+1	Command	Add row	Add row to matrix, at the bottom edge	*Matrix operations*		M.ROW+1	
F2	COL+1	Command	Add column	Add column to matrix, at the right edge	*Matrix operations*		M.COL+1	
F3	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F4	GOTO	Command	Go to matrix element	Go to matrix element using GOTO Row ; GOTO Column ; (TAM) : GOTO Row ; GOTO Column	*Matrix operations*		M.GOTO	
F5	←	Arrow	Move left	Move left one position ; Fontcode : 2190_{16}	*Navigation and characters*			
F6	→	Arrow	Move right	Move right one position ; Fontcode : 2192_{16}	*Navigation and characters*			
fF1	INSR	Command	Insert row	Insert row into matrix, at the cursor position	*Matrix operations*		M.INSR	
fF2	INSC	Command	Insert column	Insert column into matrix, at the cursor position	*Matrix operations*		M.INSC	
fF3	$i_{\circledcirc}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\circledcirc}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\circledcirc}$	
fF4	OLD	Command	Old (matrix)	Revert to old element (while editing)	*Matrix operations*		M.OLD	
fF5	↑	Arrow	Move up	Move up one position ; Fontcode : 2191_{16}	*Navigation and characters*			
fF6	↓	Arrow	Move down	Move down one position ; Fontcode : 2193_{16}	*Navigation and characters*			
gF1	DELR	Command	Delete row	Delete row from matrix, at the cursor position	*Matrix operations*		M.DELR	
gF2	DELC	Command	Delete column	Delete column from matrix, at the cursor position	*Matrix operations*		M.DELC	
gF3								
gF4								
gF5	WRAP ⊚	Setting	Grow (matrix edit)	Switch on wrap (matrix edit) ; not programmable - in PEM, use flag GROW ; Info : SBI is shown if flag SBmx is SET ; SBI : wrap	*Matrix operations*	GROW	M.WRAP ⊚	ON
gF6	GROW ○	Setting	Grow (matrix edit)	Switch on grow (matrix edit) ; not programmable - in PEM, use flag GROW ; Info : SBI is shown if flag SBmx is SET ; SBI : grow	*Matrix operations*	GROW	M.GROW ○	OFF

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EDITN (M_EDIT)	Edit matrix (named)					
g-shift	DELR	DELC			WRAP ⊙	GROW ○
f-shift	INSR	INSC	$i_{\odot}$	OLD	↑	↓
unshifted	ROW+1	COL+1	i	GOTO	←	→
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	EDITN (M_EDIT)	MENU (item, nonpgm)	Edit matrix (named)	Open matrix editor for matrix in register or variable ; TAM : M.EDITN __ Tam menu	*Matrix operations*		M.EDITN	
F1	ROW+1	Command	Add row	Add row to matrix, at the bottom edge	*Matrix operations*		M.ROW+1	
F2	COL+1	Command	Add column	Add column to matrix, at the right edge	*Matrix operations*		M.COL+1	
F3	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F4	GOTO	Command	Go to matrix element	Go to matrix element using GOTO Row ; GOTO Column ; (TAM) : GOTO Row ; GOTO Column	*Matrix operations*		M.GOTO	
F5	←	Arrow	Move left	Move left one position ; Fontcode : 2190_{16}	*Navigation and characters*			
F6	→	Arrow	Move right	Move right one position ; Fontcode : 2192_{16}	*Navigation and characters*			
fF1	INSR	Command	Insert row	Insert row into matrix, at the cursor position	*Matrix operations*		M.INSR	
fF2	INSC	Command	Insert column	Insert column into matrix, at the cursor position	*Matrix operations*		M.INSC	
fF3	$i_{\circledast}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\circledast}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\circledast}$	
fF4	OLD	Command	Old (matrix)	Revert to old element (while editing)	*Matrix operations*		M.OLD	
fF5	↑	Arrow	Move up	Move up one position ; Fontcode : 2191_{16}	*Navigation and characters*			
fF6	↓	Arrow	Move down	Move down one position ; Fontcode : 2193_{16}	*Navigation and characters*			
gF1	DELR	Command	Delete row	Delete row from matrix, at the cursor position	*Matrix operations*		M.DELR	
gF2	DELC	Command	Delete column	Delete column from matrix, at the cursor position	*Matrix operations*		M.DELC	
gF3								
gF4								
gF5	WRAP ⊛	Setting	Grow (matrix edit)	Switch on wrap (matrix edit) ; not programmable - in PEM, use flag GROW ; Info : SBI is shown if flag SBmx is SET ; SBI : wrap	*Matrix operations*	GROW	M.WRAP ⊛	ON
gF6	GROW ○	Setting	Grow (matrix edit)	Switch on grow (matrix edit) ; not programmable - in PEM, use flag GROW ; Info : SBI is shown if flag SBmx is SET ; SBI : grow	*Matrix operations*	GROW	M.GROW ○	OFF

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ELEC	Electrical engineering					
g-shift	DEG ⊙	RAD ○	zyx→M	M→zyx	RECT ⊙	POLAR ○
f-shift	⇒DEG	⇒RAD	a	a^2	[A]	$[A^{-1}]$
unshifted	i	$i_{\odot}$	COMPLEX	$[M]^{-1}$	||	CLSTK
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ELEC	MENU	Electrical engineering	Electrical engineering functions and custom programs ; Ref : https://47calc.com/doc/Application%20Notes/AN0006_C47_R47_JM_ELEC.pdf	*Electrical engineering*		ELEC	
F1	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F2	$i_{\circledast}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\circledast}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\circledast}$	
F3	COMPLEX	Function (dyadic)	Complex number	Convert to or from ℂomplex number (2.0-2.5)	*Complex numbers*		COMPLEX	
F4	$[M]^{-1}$	Function (monadic)	Invert matrix	Invert matrix in X (exists only when |M| ≠ 0) ; Shortcut : [^{1}/x] ; Info : Error 22 -- Singular matrix -- is raised when |M| = 0	*Matrix operations*		$[M]^{-1}$	
F5	||	Function (dyadic)	Parallel impedance	Parallel impedance : (X × Y) / (X + Y)	*Electrical engineering and characters*		||	
F6	CLSTK	Command	Clear stack	Clear stack registers : when stack size is 8, clears XYZTABCD ; when stack size is 4, clears XYZT ; if setting iLI is ON, the stack is filled with 0 (Long integers) ; when used while plotting, CLSTK returns to the normal screen as the stack is expected to show, implying an exit from graph and other modes ; Shortcut : longpress [←] ; SBI : 8 ; 4	*Cleanup*	SSIZE8	CLSTK	
fF1	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
fF2	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : ʳ	*Angle tagging or conversion*		⇒RAD	
fF3	a	Command	Operator a	Insert value of 1 ∠ 120°	*Electrical engineering*		op_a	
fF4	a^2	Command	Operator a^2	Insert value of 1 ∠ 240°	*Electrical engineering*		op_a^2	
fF5	[A]	Command	Create 3x3 A-Matrix	Create 3x3 A-Matrix relating to Fortescue's Symmetrical Components -- see https://en.wikipedia.org/wiki/Symmetrical_components#A_matrix	*Electrical engineering*		op_A	
fF6	$[A^{-1}]$	Command	Create 3x3 A(inverse)-Matrix	Create 3x3 A(inverse)-Matrix relating to Fortescue's Symmetrical Components -- see https://en.wikipedia.org/wiki/Symmetrical_components#A_matrix	*Electrical engineering*		op_A^{-1}	
gF1	DEG ⊙	Setting (pgm)	Set ADM to DEG	Set Angular Display Mode to degrees mode (ADM = 0) ; Info : SBI ° is shown if flag SBadm is SET ; SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : °	*Angle tagging or conversion*	SBadm	DEG ⊙	ON
gF2	RAD ○	Setting (pgm)	Set ADM to RAD	Set Angular Display Mode to radians mode (ADM = 2) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ʳ	*Angle tagging or conversion*	SBang	RAD ○	OFF
gF3	zyx→M	Function (triadic)	Compose 3x1 matrix	Compose 3x1 matrix from Z, Y, X	*Electrical engineering*		zyx→M	
gF4	M→zyx	Function (monadic)	Decompose 3x1 matrix	Decompose 3x1 matrix to Z, Y, X	*Electrical engineering*		M→zyx	
gF5	RECT ⊙	Setting (pgm)	Rectangular notation	Switch on rectangular notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ∟	*Complex and coordinates*	POLAR	RECT ⊙	ON
gF6	POLAR ○	Setting (pgm)	Polar notation	Switch on polar notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊙	*Complex and coordinates*	POLAR	POLAR ○	OFF

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ELEC	Electrical engineering					
g-shift	3STOV$_{90}$	3STOI$_{93}$	3STOZ$_{96}$	abc→012	012→abc	3R↔3P
f-shift	3RCLV$_{90}$	3RCLI$_{93}$	3RCLZ$_{96}$	Δ → Y	Y → Δ	MULTSTK
unshifted	V=I×Z	I=V÷Z	Z=V÷I	X → BAL	3SWAP	3DROP
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0006_C47_R47_JM_ELEC.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	ELEC	MENU	Electrical engineering	Electrical engineering functions and custom programs ; Ref : https://47calc.com/doc/Application%20Notes/AN0006_C47_R47_JM_ELEC.pdf	*Electrical engineering*		ELEC	
F1	V=I×Z	Function (triadic)	Triple V = I × Z	X = R93 × R96 ; Y = R94 × R97 ; Z = R95 × R98	*Electrical engineering*		V=I×Z	
F2	I=V÷Z	Function (triadic)	Triple I = V ÷ Z	X = R90 / R96 ; Y = R91 / R97 ; Z = R92 / R98	*Electrical engineering*		I=V÷Z	
F3	Z=V÷I	Function (triadic)	Triple Z = V ÷ I	X = R90 / R93 ; Y = R91 / R94 ; Z = R92 / R95	*Electrical engineering*		Z=V÷I	
F4	X → BAL	Function (monadic)	X Balanced	Create balanced 3 phase quanties by pushing onto stack X × a, then X × a × a	*Electrical engineering*		X → BAL	
F5	3SWAP	Command	Swap X, Y, Z and T, A, B	Swap X, Y, Z and T, A, B	*Stack*		3SWAP	
F6	3DROP	Command	Drop X, Y, Z	Drop X, Y, Z	*Stack*		3DROP	
fF1	$3RCLV_{90}$	Command	Recall triple V	Push R90, R91, R92 to X, Y, Z ; used in menu ELEC and as dedicated registers for Virtual compound data types, as a "Triplet" stored in R90, R91, R92, interpreted as FMA (fused multiply-add) of R90 × R91 + R92 when used by extended accuracy functions in menu XFCNS ; split screen may show "No error" ; Info : R90, mapped to R90, R91, R92	*Electrical engineering*		$3RCLV_{90}$	
fF2	$3RCLI_{93}$	Command	Recall triple I	Push R93, R94, R95 to X, Y, Z ; used in menu ELEC and as dedicated registers for Virtual compound data types, as a "Triplet" stored in R93, R94, R95, interpreted as FMA (fused multiply-add) of R93 × R94 + R95 when used by extended accuracy functions in menu XFCNS ; split screen may show "No error" ; Info : R93, mapped to R93, R94, R95	*Electrical engineering*		$3RCLI_{93}$	
fF3	$3RCLZ_{96}$	Command	Recall triple Z	Push R96, R97, R98 to X, Y, Z ; used in menu ELEC and as dedicated registers for Virtual compound data types, as a "Triplet" stored in R96, R97, R98, interpreted as FMA (fused multiply-add) of R96 × R97 + R98 when used by extended accuracy functions in menu XFCNS ; split screen may show "No error" ; Info : R96, mapped to R96, R97, R98	*Electrical engineering*		$3RCLZ_{96}$	
fF4	Δ → Y	Function (triadic)	Delta to Star (Wye)	Convert star connected impedances X, Y, Z to delta impedances X, Y, Z ; TI : a : ; b : ; c :	*Electrical engineering*		Δ → Y	
fF5	Y → Δ	Function (triadic)	Star (Wye) to Delta	Convert delta connected impedances X, Y, Z to star impedances X, Y, Z ; TI : ca : ; ab : ; bc :	*Electrical engineering*		Y → Δ	
fF6	MULTSTK	MENU	Multi-stack commands	Multi-stack commands	*Stack*		MULTSTK	
gF1	$3STOV_{90}$	Command	Store triple V	Copy X, Y, Z to R90, R91, R92 ; used in menu ELEC and as dedicated registers for Virtual compound data types, as a "Triplet" stored in R90, R91, R92, interpreted as FMA (fused multiply-add) of R90 × R91 + R92 when used by extended accuracy functions in menu XFCNS ; split screen may show "No error" ; Info : R90, mapped to R90, R91, R92	*Electrical engineering*		$3STOV_{90}$	
gF2	$3STOI_{93}$	Command	Store triple I	Copy X, Y, Z to R93, R94, R95 ; used in menu ELEC and as dedicated registers for Virtual compound data types, as a "Triplet" stored in R93, R94, R95, interpreted as FMA (fused multiply-add) of R93 × R94 + R95 when used by extended accuracy functions in menu XFCNS ; split screen may show "No error" ; Info : R93, mapped to R93, R94, R95	*Electrical engineering*		$3STOI_{93}$	
gF3	$3STOZ_{96}$	Command	Store triple Z	Copy X, Y, Z to R96, R97, R98 ; used in menu ELEC and as dedicated registers for Virtual compound data types, as a "Triplet" stored in R96, R97, R98, interpreted as FMA (fused multiply-add) of R96 × R97 + R98 when used by extended accuracy functions in menu XFCNS ; split screen may show "No error" ; Info : R96, mapped to R96, R97, R98	*Electrical engineering*		$3STOZ_{96}$	
gF4	abc→012	Function (triadic)	Convert to symmetrical components	Convert 3-phase a, b, c in Z, Y, X to symmetrical components a0, a1, a2 in Z, Y, X	*Electrical engineering*		AtoSYM	
gF5	012→abc	Function (triadic)	Convert from symmetrical components	Convert symmetrical components a0, a1, a2 in Z, Y, X to 3-phase a, b, c in Z, Y, X	*Electrical engineering*		SYMtoA	
gF6	3R↔3P	Function (triadic)	Convert triple RECT ↔ POLAR	Convert ℝeal Z, Y, X to ℂomplex Z, Y, X (according to flag POLAR) and vice versa ; Info : Three-phase rectangular-polar conversion	*Electrical engineering*		3R↔3P	

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p2	ELEC	Link
F1	V=I×Z	
F2	I=V÷Z	
F3	Z=V÷I	
F4	X → BAL	
F5	3SWAP	
F6	3DROP	
f F1	3RCLV$_{90}$	
f F2	3RCLI$_{93}$	
f F3	3RCLZ$_{96}$	
f F4	Δ → Y	
f F5	Y → Δ	
f F6	MULTSTK	https://47calc.com/doc/R47/Menus/R47v0_Menu_MULTSTK_page_1.pdf
g F1	3STOV$_{90}$	
g F2	3STOI$_{93}$	
g F3	3STOZ$_{96}$	
g F4	abc→012	
g F5	012→abc	
g F6	3R↔3P	

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Ellipt	Elliptical functions					
g-shift	θ→m	m→θ	a,b→m	→DEG	→D.MS	→RAD
f-shift	k→m	m→k	am(υ,m)	F(ϕ,m)	E(ϕ,m)	Z(ϕ,m)
unshifted	sn(υ,m)	cn(υ,m)	dn(υ,m)	K(m)	E(m)	Π(n,m)
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Energy_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0023_C47_R47_WGR_JM_DE_Elliptic_Incl_Anx1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Ellipt	MENU	Elliptical functions	Elliptical functions ; Ref : https://47calc.com/doc/Application%20Notes/AN0023_C47_R47_WGR_JM_DE_Elliptic_Incl_Anx1.pdf	*Mathematics*		ELLIPT	
F1	sn(υ,m)	Function (dyadic)	Elliptic sine	Elliptic sine ; Parameter : υ = X ; m = Y ; Info : υ is Real number (1.0), not an Angle (1.1-1.5)	*Mathematics*		sn(υ,m)	
F2	cn(υ,m)	Function (dyadic)	Elliptic cosine	Elliptic cosine ; Parameter : υ = X ; m = Y ; Info :	*Mathematics*		cn(υ,m)	
F3	dn(υ,m)	Function (dyadic)	Elliptic delta amplitude	Elliptic delta amplitude ; Parameter : υ = X ; m = Y ; Info : υ is a Real number (1.0), not an Angle (1.1-1.5)	*Mathematics*		dn(υ,m)	
F4	K(m)	Function (monadic)	Complete elliptic integral (1st)	Complete elliptic integral of the 1st kind -- see https://mathworld.wolfram.com/CompleteEllipticIntegraloftheFirstKind.html ; Parameter : m = X	*Mathematics*		K(m)	
F5	E(m)	Function (monadic)	Complete elliptic integral (2nd)	Complete elliptic integral of the 2nd kind -- see https://mathworld.wolfram.com/CompleteEllipticIntegraloftheSecondKind.html ; Parameter : m = X	*Mathematics*		E(m)	
F6	Π(n,m)	Function (dyadic)	Complete elliptic integral (2rd)	Complete elliptic integral of the 3rd kind ; Parameter : n = X ; m = Y	*Mathematics*		Π(n,m)	
fF1	k→m	Function (monadic)	Eccentricity to modulus	Ellipse eccentricity to modulus : m = k^2 ; TI : modulus m=k^2 :	*Mathematics*		k→m	
fF2	m→k	Function (monadic)	Modulus to eccentricity	Ellipse modulus to eccentricity : k = √m ; TI : eccentricity e=k=√m :	*Mathematics*		m→k	
fF3	am(υ,m)	Function (dyadic)	Elliptic amplitude	Elliptic amplitude ; Parameter : υ = X ; m = Y ; Info : υ is a Real number (1.0), not an Angle (1.1-1.5)	*Mathematics*		am(υ,m)	
fF4	F(ϕ,m)	Function (dyadic)	Incomplete elliptic integral (1st)	Incomplete elliptic integral of the 1st kind ; Parameter : φ = X ; m = Y ; Info : ϕ is amplitude angle (any angle mode)	*Mathematics*		F(ϕ,m)	
fF5	E(ϕ,m)	Function (dyadic)	Incomplete elliptic integral (2nd)	Incomplete elliptic integral of the 2nd kind ; Parameter : φ = X ; m = Y ; Info : ϕ is amplitude angle (any angle mode)	*Mathematics*		E(ϕ,m)	
fF6	Z(ϕ,m)	Function (dyadic)	Jacobi's Zeta	Jacobi's Zeta ; Parameter : φ = X ; m = Y ; Info : ϕ is amplitude angle (any angle mode)	*Mathematics*		Z(ϕ,m)	
gF1	θ→m	Function (monadic)	Angle to modulus	Ellipse eccentricity angle to modulus : m = $SIN^2(θ)$; TI : modulus m=k^2 :	*Mathematics*		θ→m	
gF2	m→θ	Function (monadic)	Modulus to angle	Ellipse modulus to eccentricity angle : θ = ARCSIN(√m) ; TI : eccentricity angle θ :	*Mathematics*		m→θ	
gF3	a,b→m	Function (dyadic)	Dimensions to modulus	Ellipse dimensions to modulus : m = $1-(a/b)^2$, where b is the larger axis ; TI : modulus m=k^2 :	*Mathematics*		a,b→m	
gF4	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
gF5	⇒D.MS	Function (monadic)	Set D.MS tag or convert to D.MS	If untagged, set tag to D.MS (sexagesimal degrees) ; if tagged, convert X to D.MS ; does not change Angular Display Mode ; Tag : ° ' "	*Angle tagging or conversion*		⇒D.MS	
gF6	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : ʳ	*Angle tagging or conversion*		⇒RAD	

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Energy:	Energy conversions					
g-shift						
f-shift	J ←	→ eV	J ←	→ erg	J ←	→ foe
unshifted	J ←	→ Wh	J ←	→ cal	J ←	→ Btu
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_EQN_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Energy:	MENU	Energy conversions	Convert between units of energy ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Energy conversions*		Energy:	
F1	Wh→J (J ←)	Function (monadic, linked)	Wh to J	Convert Watt-hour to Joule ; TI : J:	*Energy conversions*	$CONV_{HP}$		
F2	J→Wh (→ Wh)	Function (monadic, linked)	J to Wh	Convert Joule to Watt-hour ; TI : Wh:	*Energy conversions*	$CONV_{HP}$		
F3	cal→J (J ←)	Function (monadic, linked)	cal to J	Convert calorie to Joule ; TI : J:	*Energy conversions*	$CONV_{HP}$		
F4	J→cal (→ cal)	Function (monadic, linked)	J to cal	Convert Joule to calorie ; TI : cal:	*Energy conversions*	$CONV_{HP}$		
F5	Btu→J (J ←)	Function (monadic, linked)	Btu to J	Convert British Thermal Unit to Joule ; TI : J:	*Energy conversions*	$CONV_{HP}$		
F6	J→Btu (→ Btu)	Function (monadic, linked)	J to Btu	Convert Joule to British Thermal Unit ; TI : Btu:	*Energy conversions*	$CONV_{HP}$		
fF1	eV→J (J ←)	Function (monadic, linked)	eV to J	Convert electronvolt to Joule ; TI : J:	*Energy conversions*	$CONV_{HP}$		
fF2	J→eV (→ eV)	Function (monadic, linked)	J to eV	Convert Joule to electronvolt ; TI : eV:	*Energy conversions*	$CONV_{HP}$		
fF3	erg→J (J ←)	Function (monadic, linked)	erg to J	Convert erg to Joule ; TI : J:	*Energy conversions*	$CONV_{HP}$		
fF4	J→erg (→ erg)	Function (monadic, linked)	J to erg	Convert Joule to erg ; TI : erg:	*Energy conversions*	$CONV_{HP}$		
fF5	foe→J (J ←)	Function (monadic, linked)	foe to J	Convert foe to Joule ; TI : J:	*Energy conversions*	$CONV_{HP}$		
fF6	J→foe (→ foe)	Function (monadic, linked)	J to foe	Convert Joule to foe ; TI : foe:	*Energy conversions*	$CONV_{HP}$		
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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EQN	Equation editor					
g-shift						
f-shift	DELETE					f Graph
unshifted	NEW	EDIT	f''	f'	∫f	f Solve
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Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf
Ref 3 https://47calc.com/doc/Application%20Notes/AN0011_C47_JM_EQN_and_ADV_menu_solver_integrator_updated.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	EQN	MENU	Equation editor	Equation editor to enter multiple expressions ; Info : EIM = Equation Input Mode ; when no expression has been entered, only button NEW is shown in this menu ; when two or more expressions have been entered, use [↑] or [↓] to select ; menu CAT [EQN] is available on keyboard f[+] in EIM ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQN	
F1	NEW	MENU (item, nonpgm)	New equation	Open equation editor menu to create new equation (previous equation pushed) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.NEW	
F2	EDIT	Command (submnu)	Edit equation	Open equation editor menu to edit equation (previous equation loaded) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.EDIT	
F3	f"	MENU	Second derivative menu [EQN]	Numerically calculate second derivative using current expression, at value of starred variable and using step size of δ_d, as specified using the buttons in this menu ; TI : δ= ; f"≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Equations*		f"	
F4	f'	MENU	First derivative menu [EQN]	Numerically calculate first derivative using current expression, at value of starred variable and using step size of δ_d, as specified using the buttons in this menu ; TI : δ= ; f'≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Equations*		f'	
F5	∫f	MENU	Integrator [EQN]	Integrator (variables) menu for the algebraic expression entered in the equation editor ; enter value and press <var_n> button(s) to set variables, then press button for variable to be used by the integrator in menu Tool∫ or this menu ; if only one variable exists it will be selected and starred automatically ; tolerance set by variable ACC ; Info : TI : "Select Integrator Variable" is presented if Tool∫ is activated without a variable having been selected first	*Integrator*		∫f	
F6	f Solve	MENU	Solver [EQN]	Solver (variables) menu for the algebraic expression (= 0) entered in NEW ; enter value and press <var_n> button(s) to initialise variable(s), then press button for variable to be solved for by the solver(s) in menu ToolS ; if only one variable exists it will be selected and starred automatically ; Info : TI : "Select Solver Variable" is presented if ToolS is activated without a variable having been selected first	*Solver*		f Solve	
fF1	DELETE	Command	Delete	Delete equation	*Cleanup*		EQ.DEL	
fF2								
fF3								
fF4								
fF5								
fF6	f Graph	MENU	Grapher [EQN]	Grapher (variables) menu for the algebraic expression entered in EQ.NEW ; enter value and press <var_n> button(s) to initialise variable(s), then press button for variable to be plotted using the drawing functions in menu Graphs ; if only one variable exists it will be selected and starred automatically ; Ref : https://47calc.com/doc/Application%20Notes/AN0013_C47_JM_Graphs.pdf	*Equations*		f Graph	
gF1								
gF2								
gF3								
gF4								
gF5								

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF6								

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p1	EQN	Link
F1	NEW	https://47calc.com/doc/R47/Menus/R47v0_Menu_NEW_page_1.pdf
F2	EDIT	
F3	f"	https://47calc.com/doc/R47/Menus/R47v0_Menu_f-double_page_1.pdf
F4	f'	https://47calc.com/doc/R47/Menus/R47v0_Menu_f-prime_page_1.pdf
F5	∫f	https://47calc.com/doc/R47/Menus/R47v0_Menu_Integral-f_page_1.pdf
F6	f Solve	https://47calc.com/doc/R47/Menus/R47v0_Menu_f_Solve_page_1.pdf
fF1	DELETE	
fF2		
fF3		
fF4		
fF5		
fF6	f Graph	https://47calc.com/doc/R47/Menus/R47v0_Menu_f_Graph_page_1.pdf
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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EXP	Exponential					
g-shift	sinh	cosh	tanh	arsinh	arcosh	artanh
f-shift	$\sqrt[3]{x}$	$\sqrt[x]{y}$	$\sqrt{x}$	2^x	e^x-1	e^x
unshifted	x^3	y^x	$\sqrt{(1+x^2)}$	LB	LN(1+x)	$LOG_x y$
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Expon_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	EXP	MENU	Exponential	Exponential functions	*Mathematics*		EXP	
F1	x^3	Function (monadic)	Cube	Raise to power of 3	*Mathematics*		x^3	
F2	y^x	Function (dyadic)	y to the power x	Raise value in the Y-register to the power in the X-register	*Mathematics*		y^x	
F3	$\sqrt{(1+x^2)}$	Function (monadic)	$\sqrt{(1+x^2)}$	Calculate $\sqrt{(1+x^2)}$	*Mathematics*		$\sqrt{(1+x^2)}$	
F4	LB	Function (monadic)	Binary logarithm	Binary logarithm (base 2)	*Mathematics*		LB	
F5	LN(1+x)	Function (monadic)	LN(1+x)	More accurate calculation of LN(1+x) for x ≈ 0	*Mathematics*		LN(1+x)	
F6	$LOG_x y$	Function (dyadic)	$LOG_x y$	Logarithm of Y for base X	*Mathematics*		$LOG_x y$	
fF1	$\sqrt[3]{x}$	Function (monadic)	Cube root	Cube root of X	*Mathematics*		$\sqrt[3]{x}$	
fF2	$\sqrt[x]{y}$	Function (dyadic)	xth root	Xth root of Y	*Mathematics*		$\sqrt[x]{y}$	
fF3	$\sqrt{x}$	Function (monadic)	Square root	Square root of X ; Info : When X is a matrix $\sqrt{x}$ calculates its square root (MSQRT)	*Mathematics*		$\sqrt{x}$	
fF4	2^x	Function (monadic)	2 to the power x	Raise 2 to the power in the X-register	*Mathematics*		2^x	
fF5	e^x-1	Function (monadic)	$e^x - 1$	More accurate calculation of $e^x - 1$ for x ≈ 0	*Mathematics*		e^x-1	
fF6	e^x	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^x	
gF1	sinh	Function (monadic)	Hyperbolic sine	Hyperbolic sine	*Mathematics*		sinh	
gF2	cosh	Function (monadic)	Hyperbolic cosine	Hyperbolic cosine	*Mathematics*		cosh	
gF3	tanh	Function (monadic)	Hyperbolic tangent	Hyperbolic tangent	*Mathematics*		tanh	
gF4	arsinh	Function (monadic)	Inverse hyperbolic sine	Inverse hyperbolic sine	*Mathematics*		arsinh	
gF5	arcosh	Function (monadic)	Inverse hyperbolic cosine	Inverse hyperbolic cosine	*Mathematics*		arcosh	
gF6	artanh	Function (monadic)	Inverse hyperbolic tangent	Inverse hyperbolic tangent	*Mathematics*		artanh	

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Expon:	Exponential distribution					
g-shift	STO_R λ					
f-shift						
unshifted	$Expon_p$		$Expon_{\triangle}$	$Expon_{\triangle}$		$Expon^{-1}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Expon:	MENU	Exponential distribution	Exponential probability distribution (continuous) ; TI : RegR = λ =	*Probability (real)*		Expon:	
F1	$Expon_p$	Function (monadic)	Exponential pdf	Exponential probability density function	*Probability (real)*		$Expon_p$	
F2								
F3	$Expon_{\triangle}$	Function (monadic)	Exponential cdf (lower)	Exponential cumulative distribution (lower tail)	*Probability (real)*		$Expon_{\triangle}$	
F4	$Expon_{\triangle}$	Function (monadic)	Exponential cdf (upper)	Exponential cumulative distribution (upper tail)	*Probability (real)*		$Expon_{\triangle}$	
F5								
F6	$Expon^{-1}$	Function (monadic)	Exponential qf (inverse)	Exponential inverse cumulative distribution (quantile)	*Probability (real)*		$Expon^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_R λ	Command	Store λ in R	Store parameter λ : rate parameter in register R ; Split screen : RegR = λ =	*Probability (real)*			
gF2								
gF3								
gF4								
gF5								
gF6								

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f Graph	Grapher [EQN]					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var…>		Graphs	Draw^x_y
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_f_Solve_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0013_C47_JM_Graphs.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	f Graph	MENU	Grapher [EQN]	Grapher (variables) menu for the algebraic expression entered in EQ.NEW ; enter value and press <var$_n$> button(s) to initialise variable(s), then press button for variable to be plotted using the drawing functions in menu Graphs ; if only one variable exists it will be selected and starred automatically ; Ref : https://47calc.com/doc/Application%20Notes/AN0013_C47_JM_Graphs.pdf	*Equations*		f Graph	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 of the expression entered in EQ.NEW (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
F6	Draw$^{X}_{Y}$	MENU (item)	Draw (stack limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set from stack (Y, X) and Y-axis limits by variables (↓Y , ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw$^{X}_{Y}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	f Graph	Link
F1	<var$_1$>	
F2	<var$_2$>*	
F3	<var...>	
F4		
F5	Graphs	https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf
F6	Draw^x_y	https://47calc.com/doc/R47/Menus/R47v0_Menu_DrawYX_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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F:	Fisher's F distribution					
g-shift	STO_M d_1	STO_N d_2				
f-shift						
unshifted	$F_p(x)$		$F_{\triangle}(x)$	$F_{\triangle}(x)$		$F^{-1}(p)$
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_f-prime_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	F:	MENU	Fisher's F distribution	Fisher's F probability distribution (continuous) ; TI : RegM = d_1 = ; RegN = d_2 =	*Probability (real)*		F:	
F1	$F_p(x)$	Function (monadic)	Fisher's F pdf	Fisher's F probability density function	*Probability (real)*		$F_p(x)$	
F2								
F3	$F_{\triangleleft}(x)$	Function (monadic)	Fisher's F cdf (lower)	Fisher's F cumulative distribution (lower tail)	*Probability (real)*		$F_{\triangleleft}(x)$	
F4	$F_{\triangleright}(x)$	Function (monadic)	Fisher's F cdf (upper)	Fisher's F cumulative distribution (upper tail)	*Probability (real)*		$F_{\triangleright}(x)$	
F5								
F6	$F^{-1}(p)$	Function (monadic)	Fisher's F qf (inverse)	Fisher's F inverse cumulative distribution (quantile)	*Probability (real)*		$F^{-1}(p)$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M d_1	Command	Store d_1 in M	Store parameter d_1 : degree of freedom in register M ; Split screen : RegM = d_1 =	*Probability (real)*			
gF2	STO_N d_2	Command	Store d_2 in N	Store parameter d_2 : degree of freedom in register N ; Split screen : RegN = d_2 =	*Probability (real)*			
gF3								
gF4								
gF5								
gF6								

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f Solve	Solver [EQN]					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var$_2$>*		ToolS	Calc f
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	f Solve	MENU	Solver [EQN]	Solver (variables) menu for the algebraic expression (= 0) entered in NEW ; enter value and press <var$_n$> button(s) to initialise variable(s), then press button for variable to be solved for by the solver(s) in menu ToolS ; if only one variable exists it will be selected and starred automatically ; Info : TI : "Select Solver Variable" is presented if ToolS is activated without a variable having been selected first	*Solver*		f Solve	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 of the expression entered in EQ.NEW (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var$_2$>*	Variable (user)	Variable 2	Variable 2 of the expression entered in EQ.NEW (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5	ToolS	MENU	Solver tools	Solver tools and parameter settings ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Solver_Result_Codes.pdf	*Solver*		ToolS	
F6	Calc f	Command	Calculate result	Calculate value of the result for the expression ; TI : f =	*Equations*		Calc f	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	f Solve	Link
F1	<var$_1$>	
F2	<var$_2$>*	
F3	<var$_2$>*	
F4		
F5	ToolS	https://47calc.com/doc/R47/Menus/R47v0_Menu_ToolSlv_page_1.pdf
F6	Calc f	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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F&p:	Force & Pressure conversions					
g-shift	Pa ←	→ bar	Pa ←	→ torr		
f-shift	Pa ←	→ atm	Pa ←	→ psi		
unshifted	Pa ←	→ mmHg	Pa ←	→ inHg	N ←	→ lbf
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_FCNS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	F&p:	MENU	Force & Pressure conversions	Convert between units of force and pressure ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Force & Pressure conversions*		F&p:	
F1	mmHg→Pa (Pa ←)	Function (monadic, linked)	mmHg to Pa	Convert millimetre of Mercury to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
F2	Pa→mmHg (→ mmHg)	Function (monadic, linked)	Pa to mmHg	Convert Pascal to millimetre of Mercury ; TI : mmHg:	*Pressure conversions*	$CONV_{HP}$		
F3	inHg→Pa (Pa ←)	Function (monadic, linked)	inHg to Pa	Convert inch of Mercury to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
F4	Pa→inHg (→ inHg)	Function (monadic, linked)	Pa to inHg	Convert Pascal to inch of Mercury ; TI : inHg:	*Pressure conversions*	$CONV_{HP}$		
F5	lbf→N (N ←)	Function (monadic, linked)	lbf to N	Convert pound force to Newton ; TI : N:	*Force conversions*	$CONV_{HP}$		
F6	N→lbf (→ lbf)	Function (monadic, linked)	N to lbf	Convert Newton to pound force ; TI : lbf:	*Force conversions*	$CONV_{HP}$		
fF1	atm→Pa (Pa ←)	Function (monadic, linked)	atm to Pa	Convert atmosphere to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
fF2	Pa→atm (→ atm)	Function (monadic, linked)	Pa to atm	Convert Pascal to atmosphere ; TI : atm:	*Pressure conversions*	$CONV_{HP}$		
fF3	psi→Pa (Pa ←)	Function (monadic, linked)	psi to Pa	Convert pound force per square inch to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
fF4	Pa→psi (→ psi)	Function (monadic, linked)	Pa to psi	Convert Pascal to pound force per square inch ; TI : psi:	*Pressure conversions*	$CONV_{HP}$		
fF5								
fF6								
gF1	bar→Pa (Pa ←)	Function (monadic, linked)	bar to Pa	Convert bar to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
gF2	Pa→bar (→ bar)	Function (monadic, linked)	Pa to bar	Convert Pascal to bar ; TI : bar:	*Pressure conversions*	$CONV_{HP}$		
gF3	torr→Pa (Pa ←)	Function (monadic, linked)	torr to Pa	Convert torr to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
gF4	Pa→torr (→ torr)	Function (monadic, linked)	Pa to torr	Convert Pascal to torr ; TI : torr:	*Pressure conversions*	$CONV_{HP}$		
gF5								
gF6								

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f" (MVAR)	First derivative (RPN)					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var...>			δ_d
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_F-and-p_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	f" (MVAR)	Command (submnu)	First derivative (RPN)	Numerically calculate first derivative using RPN program, at value of starred MVAR variable and using step size of δ_d, as specified using the buttons in the (MVAR (delta)) menu presented ; TAM : f" __ TamLblOnly menu ; TI : δ= ; f"≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*RPN Calculus and plotting*		f"	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 as created by MVAR (in RPN program) (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5								
F6	δ_d	Variable (real)	Delta value for derivatives	Delta value for derivatives, used as the step size ; Info : After a value has been entered, it is show as a subscript ; if no value is entered, or a variable 'δ_d' has already been defined by the user, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Mathematics*		δ_d	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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f''	Second derivative menu [EQN]					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var...>		δ_d	Calc f''
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_f-double_ADV_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	f''	MENU	Second derivative menu [EQN]	Numerically calculate second derivative using current expression, at value of starred variable and using step size of δ_d, as specified using the buttons in this menu ; TI : δ= ; f''≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Equations*		f''	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 of the expression entered in EQ.NEW (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5	δ_d	Variable (real)	Delta value for derivatives	Delta value for derivatives, used as the step size ; Info : After a value has been entered, it is show as a subscript ; if no value is entered, or a variable 'δ_d' has already been defined by the user, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Mathematics*		δ_d	
F6	Calc f''	Command	Second derivative [EQN]	Numerically calculate second derivative for (starred) variable ; TI : f'' =	*Equations*		Calc f''	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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f' (MVAR)	Second derivative (RPN)					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var...>			δ_d
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_f-double_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	f' (MVAR)	Command (submnu)	Second derivative (RPN)	Numerically calculate second derivative using RPN program, at value of starred MVAR variable and using step size of δ_d, as specified using the buttons in the (MVAR (delta)) menu presented ; TAM : f' __ TamLblOnly menu ; TI : δ= ; f'≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*RPN Calculus and plotting*		f'	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 as created by MVAR (in RPN program) (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5								
F6	δ_d	Variable (real)	Delta value for derivatives	Delta value for derivatives, used as the step size ; Info : After a value has been entered, it is show as a subscript ; if no value is entered, or a variable 'δ_d' has already been defined by the user, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Mathematics*		δ_d	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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f'	First derivative menu [EQN]					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var...>		δ_d	Calc f'
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	f'	MENU	First derivative menu [EQN]	Numerically calculate first derivative using current expression, at value of starred variable and using step size of δ_d, as specified using the buttons in this menu ; TI : δ= ; f'≈ ; Info : if no step size is entered, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Equations*		f'	
F1	<var_1>	Variable (user)	Variable 1	Variable 1 of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var_1>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var_2>*	Variable (user)	Variable 2	Variable 2 of the expression entered in EQ.NEW (starred) ; Info : The variable name is starred (<var_2>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5	δ_d	Variable (real)	Delta value for derivatives	Delta value for derivatives, used as the step size ; Info : After a value has been entered, it is show as a subscript ; if no value is entered, or a variable 'δ_d' has already been defined by the user, an automatic step size is determined by iteration in 16 steps, starting with 1/10 ; the step size will always be displayed as "δ"	*Mathematics*		δ_d	
F6	Calc f'	Command	First derivative [EQN]	Numerically calculate first derivative for (starred) variable ; TI : f' =	*Equations*		Calc f'	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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FCNS	Functions (equation)					
g-shift	CONJ	COS	cosh	erf	erfc	e^x
f-shift	artanh	ATAN2	B_n	B_n^*	ceil	COMB
unshifted	$\sqrt[3]{x}$	ARCCOS	arcosh	ARCSIN	ARCTAN	arsinh
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FCNS	MENU (ASM)	Functions (equation)	Catalog of all calculator functions available in Equation Input Mode ; Info : Type characters 1-2 to search	*Catalog*		FCNSe	
F1	$\sqrt[3]{x}$	Function (monadic)	Cube root	Cube root of X	*Mathematics*		$\sqrt[3]{x}$	
F2	ARCCOS	Function (monadic)	Arc cosine	Inverse cosine ; Info : Returns the principal value of the inverse cosine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCCOS	
F3	arcosh	Function (monadic)	Inverse hyperbolic cosine	Inverse hyperbolic cosine	*Mathematics*		arcosh	
F4	ARCSIN	Function (monadic)	Arc sine	Inverse sine ; Info : Returns the principal value of the inverse sine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCSIN	
F5	ARCTAN	Function (monadic)	Arc tangent	Inverse tangent ; Info : Returns the principal value of the inverse tangent of X ; if flag SPCRES is SET, infinity input is allowed and the range is extended to [-90°, 90°] (inclusive)	*Trigonometry*	SPCRES	ARCTAN	
F6	arsinh	Function (monadic)	Inverse hyperbolic sine	Inverse hyperbolic sine	*Mathematics*		arsinh	
fF1	artanh	Function (monadic)	Inverse hyperbolic tangent	Inverse hyperbolic tangent	*Mathematics*		artanh	
fF2	ATAN2	Function (dyadic)	Expanded inverse tangent	Arc tangent of Y / X	*Trigonometry*		ATAN2	
fF3	B_n	Function (monadic)	Bernoulli number (new definition)	Bernoulli number (new definition)	*Mathematics*		B_n	
fF4	B_n^*	Function (monadic)	Bernoulli number (old definition)	Bernoulli number (old definition)	*Mathematics*		B_n^*	
fF5	ceil	Function (monadic)	Ceiling	Mathematical ceiling of number	*Reals*		ceil	
fF6	COMB	Function (dyadic)	Combinations	Combinations of X out of Y	*Trigonometry*		COMB	
gF1	CONJ	Function (monadic)	Complex conjugate	Complex conjugate	*Complex numbers*		CONJ	
gF2	COS	Function (monadic)	Cosine	Cosine	*Trigonometry*		COS	
gF3	cosh	Function (monadic)	Hyperbolic cosine	Hyperbolic cosine	*Mathematics*		cosh	
gF4	erf	Function (monadic)	Error function	Error function	*Mathematics*		erf	
gF5	erfc	Function (monadic)	Complementary error function	Complementary error function	*Mathematics*		erfc	
gF6	e^x	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^x	

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FCNS	Functions (equation)					
g-shift	LNΓ	LOG	$LOG_x y$	MAX	MIN	MOD
f-shift	IDIV	Im	LB	L_m	$L_m^{(\alpha)}$	LN
unshifted	FIB	floor	g_d	g_d^{-1}	H_n	H_{nP}
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	FCNS	MENU (ASM)	Functions (equation)	Catalog of all calculator functions available in Equation Input Mode ; Info : Type characters 1-2 to search	*Catalog*		FCNSe	
F1	FIB	Function (monadic)	Fibonacci number	Fibonacci number n, where n = X -- see https://en.wikipedia.org/wiki/Fibonacci_sequence	*Mathematics*		FIB	
F2	floor	Function (monadic)	Floor	Mathematical floor of number	*Reals*		floor	
F3	gd	Function (monadic)	Gudermannian function	Gudermannian function -- see http://en.wikipedia.org/wiki/Gudermannian_function	*Mathematics*		gd	
F4	gd^{-1}	Function (monadic)	Inverse Gudermannian function	Inverse Gudermannian function -- see http://en.wikipedia.org/wiki/Gudermannian_function	*Mathematics*		gd^{-1}	
F5	H_n	Function (dyadic)	Hermite polynomials (probability)	Hermite polynomials (probability) ; Parameter : x = X ; n = Y	*Mathematics*		H_n	
F6	H_{nP}	Function (dyadic)	Hermite polynomials (physics)	Hermite polynomials (physics) ; Parameter : x = X ; n = Y	*Mathematics*		H_{nP}	
fF1	IDIV	Function (dyadic)	Integer divide	Integer divide	*Integers*		IDIV	
fF2	Im	Function (monadic)	Imaginary part	Imaginary part of ℂomplex number	*Complex numbers*		Im	
fF3	LB	Function (monadic)	Binary logarithm	Binary logarithm (base 2)	*Mathematics*		LB	
fF4	L_m	Function (dyadic)	Laguerre polynomials	Laguerre polynomials ; Parameter : x = X ; m = Y	*Mathematics*		L_m	
fF5	$L_m^{(\alpha)}$	Function (triadic)	Laguerre generalised polynomials	Laguerre generalised polynomials ; Parameter : x = X ; m = Y ; α = Z	*Mathematics*		$L_m^{(\alpha)}$	
fF6	LN	Function (monadic)	Natural logarithm	Natural logarithm (base *e*)	*Mathematics*		LN	
gF1	LNΓ	Function (monadic)	Natural logarith of Gamma function	Natural logarith of Gamma function	*Mathematics*		LNΓ	
gF2	LOG	Function (monadic)	Common logarithm	Common logarithm (base 10)	*Mathematics*		LOG	
gF3	$LOG_x y$	Function (dyadic)	$LOG_x y$	Logarithm of Y for base X	*Mathematics*		$LOG_x y$	
gF4	MAX	Function (dyadic)	Maximum	Maximum of X and Y	*Mathematics*		MAX	
gF5	MIN	Function (dyadic)	Minimum	Minimum of X and Y	*Mathematics*		MIN	
gF6	MOD	Function (dyadic)	Modulo	Y modulo X	*Mathematics*		MOD	

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FCNS	Functions (equation)					
g-shift	W_m	W_p	W^{-1}	$\sqrt[x]{y}$	x!	Γ(x)
f-shift	sincπ	sinh	TAN	tanh	T_n	U_n
unshifted	PERM	P_n	Re	RMD	SIN	sinc
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	FCNS	MENU (ASM)	Functions (equation)	Catalog of all calculator functions available in Equation Input Mode ; Info : Type characters 1-2 to search	*Catalog*		FCNSe	
F1	PERM	Function (dyadic)	Permutations	Permutations of X out of Y	*Probability*		PERM	
F2	P_n	Function (dyadic)	Legendre polynomials	Legendre polynomials ; Parameter : x = X ; n = Y	*Mathematics*		P_n	
F3	Re	Function (monadic)	Real part	Real part of Complex number	*Complex numbers*		Re	
F4	RMD	Function (dyadic)	Remainder	Remainder of division of Y by X	*Integers*		RMD	
F5	SIN	Function (monadic)	Sine	Sine	*Trigonometry*		SIN	
F6	sinc	Function (monadic)	Sinc	Calculate (Sine of X) / X ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sinc	
fF1	sincπ	Function (monadic)	Sinc pi	Calculate (Sine of π × X) / (π × X) ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sincπ	
fF2	sinh	Function (monadic)	Hyperbolic sine	Hyperbolic sine	*Mathematics*		sinh	
fF3	TAN	Function (monadic)	Tangent	Tangent	*Trigonometry*		TAN	
fF4	tanh	Function (monadic)	Hyperbolic tangent	Hyperbolic tangent	*Mathematics*		tanh	
fF5	T_n	Function (dyadic)	Chebyshev polynomials (1st)	Chebyshev polynomials of the 1st kind ; Parameter : x = X ; n = Y	*Mathematics*		T_n	
fF6	U_n	Function (dyadic)	Chebyshev polynomials (2nd)	Chebyshev polynomials of the 2nd kind ; Parameter : x = X ; n = Y	*Mathematics*		U_n	
gF1	W_m	Function (monadic)	Lambert's W function (negative)	Lambert's W function (negative branch) ; m = minus) -- see http://en.wikipedia.org/wiki/Lambert_W_function	*Mathematics*		W_m	
gF2	W_p	Function (monadic)	Lambert's W function (principal)	Lambert's W function (principal branch) -- see http://mathworld.wolfram.com/LambertW-Function.html	*Mathematics*		W_p	
gF3	W^{-1}	Function (monadic)	Inverse of Lambert's W function (principal)	Inverse of Lambert's W function (principal branch, ≥ -1)	*Mathematics*		W^{-1}	
gF4	$\sqrt[x]{y}$	Function (dyadic)	xth root	Xth root of Y	*Mathematics*		$\sqrt[x]{y}$	
gF5	x!	Function (monadic)	Factorial x! or Γ(x+1)	For Long integers : x! ; for Reals : Γ(x+1) ; Info : Max integer: 450 (up to 1000 digits accurate) ; max real : 2123.549 956 662 463 236 31 ; integers > max are converted to reals	*Mathematics*		x!	
gF6	Γ(x)	Function (monadic)	Gamma function	Gamma function	*Mathematics*		Γ(x)	

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FCNS	Functions (equation)					
g-shift						
f-shift						
unshifted	ζ(x)	|x|	√x	∡		
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	FCNS	MENU (ASM)	Functions (equation)	Catalog of all calculator functions available in Equation Input Mode ; Info : Type characters 1-2 to search	*Catalog*		FCNSe	
F1	ζ(x)	Function (monadic)	Riemann's Zeta for real arguments	Riemann's Zeta for real arguments -- see http://mathworld.wolfram.com/RiemannZetaFunction.html	*Mathematics*		ζ(x)	
F2	|x|	Function (monadic)	Magnitude	Magnitude (absolute value) of Complex number	*Complex numbers*		|x|	
F3	√x	Function (monadic)	Square root	Square root of X ; Info : When X is a matrix √x calculates its square root (MSQRT)	*Mathematics*		√x	
F4	∡	Function (monadic)	Argument (angle)	Argument (angle) of Complex number	*Complex numbers*		∡	
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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FCNS	Functions					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FCNS	MENU (ASM)	Functions	Catalog of all calculator functions ; Info : Type characters 1-2 to search ; Ref : https://47calc.com/doc/R47/Reference/R47v0_CAT-FCNS.pdf	*Catalog*		FCNS	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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FFF+:	Humorous conversions					
g-shift	in ←	→ Banana	lbs ←	→ fir	mph ←	→ fur/ftn
f-shift	mm ←	→ Banana	kg ←	→ fir	km/h ←	→ fur/ftn
unshifted	m ←	→ fur	s ←	→ ftn	m/s ←	→ fur/ftn
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FFF+:	MENU	Humorous conversions	Conversions to and from the furlong-firkin-fortnight (FFF) system (and bananas and beardseconds) -- see https://en.wikipedia.org/wiki/FFF_system ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Humorous conversions*		FFF+:	
F1	fur→m (m ←)	Function (monadic, linked)	fur to m	Convert furlong to metre ; TI : m:	*Distance conversions*	CONV$_{HP}$		
F2	m→fur (→ fur)	Function (monadic, linked)	m to fur	Convert metre to furlong ; TI : fur:	*Distance conversions*	CONV$_{HP}$		
F3	ftn→s (s ←)	Function (monadic, linked)	ftn to s	Convert fortnight to second ; TI : s:	*Time conversions*	CONV$_{HP}$		
F4	s→ftn (→ ftn)	Function (monadic, linked)	s to ftn	Convert second to fortnight ; TI : ftn:	*Time conversions*	CONV$_{HP}$		
F5	fur/ftn→m/s (m/s ←)	Function (monadic, linked)	fur/ftn to m/s	Convert furlong per fortnight to metre per second ; TI : m/s:	*Speed conversions*	CONV$_{HP}$		
F6	m/s→fur/ftn (→ fur/ftn)	Function (monadic, linked)	m/s to fur/ftn	Convert metre per second to furlong per fortnight ; TI : fur/ftn: ; Info : single = ur/ftn←	*Speed conversions*	CONV$_{HP}$		
fF1	Banana→mm (mm ←)	Function (monadic, linked)	Banana to mm	Convert Banana length to millimetre ; TI : mm:	*Distance conversions*	CONV$_{HP}$		
fF2	mm→Banana (→ Banana)	Function (monadic, linked)	mm to Banana	Convert millimetre to Banana length ; TI : Banana:	*Distance conversions*	CONV$_{HP}$		
fF3	fir→kg (kg ←)	Function (monadic, linked)	fir to kg	Convert firkin to kilogram ; TI : kg:	*Mass conversions*	CONV$_{HP}$		
fF4	kg→fir (→ fir)	Function (monadic, linked)	kg to fir	Convert kilogram to firkin ; TI : fir:	*Mass conversions*	CONV$_{HP}$		
fF5	fur/ftn→km/h (km/h ←)	Function (monadic, linked)	fur/ftn to km/h	Convert furlong per fortnight to kilometre per hour ; TI : km/h:	*Speed conversions*	CONV$_{HP}$		
fF6	km/h→fur/ftn (→ fur/ftn)	Function (monadic, linked)	km/h to fur/ftn	Convert kilometre per hour to furlong per fortnight ; TI : fur/ftn: ; Info : single = ur/ftn←	*Speed conversions*	CONV$_{HP}$		
gF1	Banana→in (in ←)	Function (monadic, linked)	Banana to in	Convert Banana length to inch ; TI : in:	*Distance conversions*	CONV$_{HP}$		
gF2	in→Banana (→ Banana)	Function (monadic, linked)	in to Banana	Convert inch to Banana length ; TI : Banana:	*Distance conversions*	CONV$_{HP}$		
gF3	fir→lbs (lbs ←)	Function (monadic, linked)	fir to lbs	Convert firkin to pound ; TI : lbs:	*Mass conversions*	CONV$_{HP}$		
gF4	lbs→fir (→ fir)	Function (monadic, linked)	lbs to fir	Convert pound to firkin ; TI : fir:	*Mass conversions*	CONV$_{HP}$		
gF5	fur/ftn→mph (mph ←)	Function (monadic, linked)	fur/ftn to mph	Convert furlong per fortnight to mile per hour ; TI : mph:	*Speed conversions*	CONV$_{HP}$		
gF6	mph→fur/ftn (→ fur/ftn)	Function (monadic, linked)	mph to fur/ftn	Convert mile per hour to furlong per fortnight ; TI : fur/ftn: ; Info : single = ur/ftn←	*Speed conversions*	CONV$_{HP}$		

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FFF+:	Humorous conversions					
g-shift						
f-shift						
unshifted	m ←	→ brds	in ←	→ brds		
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	FFF+:	MENU	Humorous conversions	Conversions to and from the furlong-firkin-fortnight (FFF) system (and bananas and beardseconds) -- see https://en.wikipedia.org/wiki/FFF_system ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Humorous conversions*		FFF+:	
F1	brds→m (m ←)	Function (monadic, linked)	brds to m	Convert beardsecond to metre ; TI : m:	*Distance conversions*	CONV$_{HP}$		
F2	m→brds (→ brds)	Function (monadic, linked)	m to brds	Convert metre to beardsecond ; TI : brds:	*Distance conversions*	CONV$_{HP}$		
F3	brds→in (in ←)	Function (monadic, linked)	brds to in	Convert beardsecond to inch ; TI : in:	*Distance conversions*	CONV$_{HP}$		
F4	in→brds (→ brds)	Function (monadic, linked)	in to brds	Convert inch to beardsecond ; TI : brds:	*Distance conversions*	CONV$_{HP}$		
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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FIN	Financial					
g-shift	CLΣ	%Σ	%Σ,Δ%$\bar{x}_1$	Δ%$\bar{x}_1$	~~CASHFL~~	TVM
f-shift	Σ-	Σx	n	$\bar{x}_1$		
unshifted	Σ+	%T	%	Δ%	%+MG	%MRR
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FIN	MENU	Financial	Financial calculations including time value of money (TVM) and TVM cash flow ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Formulas.pdf	*Financial*		FIN	
F1	Σ+	Command	Sigma+	Enter data into the statistics matrix (STATS) ; TI : nnn data point(s) ; Info : if a nx2 matrix is in X, Σ+ appends the data to the STATS matrix (creating it as necessary) ; Σ+ disables automatic stack lift for the next entry	*Summary statistics*		Σ+	
F2	%T	Function (dyadic)	Percentage of total	Percentage of total, keeping Y on stack -- see Formula_PCT.png : https://47calc.com/doc/Images/Formula_PCT.png ; TI : % :	*Financial*		%T	
F3	%	Function (dyadic)	Percent	X Percent of Y, keeping Y on stack -- see Formula_PC.png : https://47calc.com/doc/Images/Formula_PC.png	*Financial*		%	
F4	Δ%	Function (dyadic)	Delta percent	Delta percentage from Y to X, keeping Y on stack -- see Formula_DELTAPC.png : https://47calc.com/doc/Images/Formula_DELTAPC.png ; TI : Δ% :	*Financial*		Δ%	
F5	%+MG	Function (dyadic)	Sales price having margin	Find sales price having margin of X percent over cost Y : %+MG = Y / (1 - X/100) -- see Formula_PCPMG.png : https://47calc.com/doc/Images/Formula_PCPMG.png ; Info : Margin is percentage of sales price	*Financial*		%+MG	
F6	%MRR	Command	Mean rate of return	Mean rate of return in percentage per period : %MRR = 100 x (x/y - 1) ^ (1/z) -- see Formula_PCMRR.png : https://47calc.com/doc/Images/Formula_PCMRR.png ; TI : % :	*Financial*		%MRR	
fF1	Σ-	Command	Sigma-	Remove data from the statistics matrix (STATS) and put the values on the stack ; TI : nnn data points ; Info : Σ- pushes values onto the stack unless automatic stack lift is disabled, e.g. by Σ+	*Summary statistics*		Σ-	
fF2	Σx	Command	Summation of x	Summation of x using statistics matrix (STATS)	*Summation*		Σx	
fF3	n	Command	n	Number of samples	*Summary statistics*		nΣ	
fF4	$\bar{x}_1$	Command	Arithmetic means, x only	Arithmetic means, x only ; TI : $\bar{x}$ =	*Financial*		$\bar{x}_1$	
fF5								
fF6								
gF1	CLΣ	Command	Clear statistics	Clear all statistics data ; delete matrices HISTO and STATS	*Cleanup*		CLΣ	
gF2	%Σ	Function (monadic)	Percentage of sum	Percentage of x to Σx : %Σ = 100 x / Σx -- see Formula_PCSIGMA.png : https://47calc.com/doc/Images/Formula_PCSIGMA.png ; TI : % :	*Financial*		%Σ	
gF3	%Σ,Δ%$\bar{x}_1$	Function (monadic)	Pct of sum and delta pct to mean	Percentage of x to Σx and delta percentage to mean using statistics matrix (STATS) ; TI : Δ% : ; % :	*Financial*		%Σ,Δ%$\bar{x}_1$	
gF4	Δ%$\bar{x}_1$	Function (monadic)	Delta percentage to mean	Delta percentage from $\bar{x}$ to x using statistics matrix (STATS) -- see Formula_DPCMEAN.png : https://47calc.com/doc/Images/Formula_DPCMEAN.png ; TI : Δ% :	*Financial*		Δ%$\bar{x}_1$	
gF5	~~CASHFL~~	MENU (strike)	TVM cash flow	TVM cash flow ; Info : When menu CASHFL is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM	*Financial*		~~CASHFL~~	
gF6	TVM	MENU	Time value of money	Time value of money functions ; Info : When menu TVM is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM ; TVM variable values are displayed as subscripts ; symbol ⌭ is used for very small values ; symbol ⌬ for very large values ; Ref : https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf	*Financial*		TVM	

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p1	FIN	Link
F1	Σ+	
F2	%T	
F3	%	
F4	Δ%	
F5	%+MG	
F6	%MRR	
f F1	Σ-	
f F2	Σx	
f F3	n	
f F4	$\bar{x}_1$	
f F5		
f F6		
g F1	CLΣ	
g F2	%Σ	
g F3	%Σ,Δ%$\bar{x}_1$	
g F4	Δ%$\bar{x}_1$	
g F5	~~CASHFL~~	https://47calc.com/doc/R47/Menus/R47v0_Menu_CASHFL_page_1.pdf
g F6	TVM	https://47calc.com/doc/R47/Menus/R47v0_Menu_TVM_page_1.pdf

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FLAG	Flags					
g-shift						CLFall
f-shift	FS?S	FS?C	FS?F	FC?F	FC?S	FC?C
unshifted	SF	FS?	FF	STATUS	FC?	CF
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FLAG	MENU	Flags	Setting, clearing and testing flags	*Programming*		FLAG	
F1	SF	Command	Set flag	Set flag ; TAM : SF __ TamFlag menu	*Programming*		SF	
F2	FS?	Command (logical)	Flag set?	Test flag set? ; TAM : FS? __ TamFlag menu	*Programming*		FS?	
F3	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
F4	STATUS	Browser	Status	Show status pages (status overview, system flags, flags 00-99, lettered flags) ; Info : Press [EXIT] to exit Status and browse using [↑] and [↓] ; browser FLGS (g[↓]) shows the same status pages in a different order ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf	*Status*		STATUS	
F5	FC?	Command (logical)	Flag clear?	Test flag clear? ; TAM : FC? __ TamFlag menu	*Programming*		FC?	
F6	CF	Command	Clear flag	Clear flag ; TAM : CF __ TamFlag menu	*Programming*		CF	
fF1	FS?S	Command (logical)	Flag set? and set	Test flag set? and set ; TAM : FS?S __ TamFlag menu	*Programming*		FS?S	
fF2	FS?C	Command (logical)	Flag set? and clear	Test flag set? and clear ; TAM : FS?C __ TamFlag menu	*Programming*		FS?C	
fF3	FS?F	Command (logical)	Flag set? and flip	Test flag set? and flip ; TAM : FS?F __ TamFlag menu	*Programming*		FS?F	
fF4	FC?F	Command (logical)	Flag clear? and flip	Test flag clear? and flip ; TAM : FC?F __ TamFlag menu	*Programming*		FC?F	
fF5	FC?S	Command (logical)	Flag clear? and set	Test flag clear? and set ; TAM : FC?S __ TamFlag menu	*Programming*		FC?S	
fF6	FC?C	Command (logical)	Flag clear? and clear	Test flag clear? and clear ; TAM : FC?C __ TamFlag menu	*Programming*		FC?C	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	CLFall	Command	Clear (user) flags	Clear all user flags (numbered and lettered) ; YESNO : Clear all flags? ; TI : All global user flags cleared	*Cleanup*		CLFALL	

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FLG	TAM (flag)					
g-shift	I	J	X	Y	Z	T
f-shift	K	L	A	B	C	D
unshifted	M	N	P	Q	R	S
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_FLG_page_2.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FLG	MENU (TAM)	TAM (flag)	Presented in menu TamFlag to quickly select lettered flags ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf	*Trailing input*			
F1	M	EasyAccess (TAM)	Flag M	Easy access to Flag M (211) ; Shortcut : FF {M}	*Trailing input*			
F2	N	EasyAccess (TAM)	Flag N	Easy access to Flag N (212)	*Trailing input*			
F3	P	EasyAccess (TAM)	Flag P	Easy access to Flag P (213)	*Trailing input*			
F4	Q	EasyAccess (TAM)	Flag Q	Easy access to Flag Q (214)	*Trailing input*			
F5	R	EasyAccess (TAM)	Flag R	Easy access to Flag R (215)	*Trailing input*			
F6	S	EasyAccess (TAM)	Flag S	Easy access to Flag S (216)	*Trailing input*			
fF1	K	EasyAccess (TAM)	Flag K	Easy access to Flag K (111) ; Shortcut : FF {K}	*Trailing input*			
fF2	L	EasyAccess (TAM)	Flag L	Easy access to Flag L (108) ; Shortcut : FF {L}	*Trailing input*			
fF3	A	EasyAccess (TAM)	Flag A	Easy access to Flag A (104) ; Shortcut : FF {A}	*Trailing input*			
fF4	B	EasyAccess (TAM)	Flag B	Easy access to Flag B (105) ; Shortcut : FF {B}	*Trailing input*			
fF5	C	EasyAccess (TAM)	Flag C	Easy access to Flag C (106) ; Shortcut : FF {C}	*Trailing input*			
fF6	D	EasyAccess (TAM)	Flag D	Easy access to Flag D (107) ; Shortcut : FF {D}	*Trailing input*			
gF1	I	EasyAccess (TAM)	Flag I	Easy access to Flag I (109) ; Shortcut : FF {I}	*Trailing input*			
gF2	J	EasyAccess (TAM)	Flag J	Easy access to Flag J (110) ; Shortcut : FF {J}	*Trailing input*			
gF3	X	EasyAccess (TAM)	Flag X	Easy access to Flag X (100)	*Trailing input*			
gF4	Y	EasyAccess (TAM)	Flag Y	Easy access to Flag Y (101)	*Trailing input*			
gF5	Z	EasyAccess (TAM)	Flag Z	Easy access to Flag Z (102)	*Trailing input*			
gF6	T	EasyAccess (TAM)	Flag T	Easy access to Flag T (103)	*Trailing input*			

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FLG	TAM (flag)					
g-shift						
f-shift	V	W				
unshifted	E	F	G	H	O	U
Page 2	F1	F2	F3	F4	F5	F6

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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	FLG	MENU (TAM)	TAM (flag)	Presented in menu TamFlag to quickly select lettered flags ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf	*Trailing input*			
F1	E	EasyAccess (TAM)	Flag E	Easy access to Flag E (217) ; Shortcut : FF {E}	*Trailing input*			
F2	F	EasyAccess (TAM)	Flag F	Easy access to Flag F (218) ; Shortcut : FF {F}	*Trailing input*			
F3	G	EasyAccess (TAM)	Flag G	Easy access to Flag G (219) ; Shortcut : FF {G}	*Trailing input*			
F4	H	EasyAccess (TAM)	Flag H	Easy access to Flag H (220) ; Shortcut : FF {H}	*Trailing input*			
F5	O	EasyAccess (TAM)	Flag O	Easy access to Flag O (221)	*Trailing input*			
F6	U	EasyAccess (TAM)	Flag U	Easy access to Flag U (222)	*Trailing input*			
fF1	V	EasyAccess (TAM)	Flag V	Easy access to Flag V (223)	*Trailing input*			
fF2	W	EasyAccess (TAM)	Flag W	Easy access to Flag W (224)	*Trailing input*			
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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FLoads:	Force loads conversions					
g-shift	Struct:	FLoads:	N ←	→ kgf	ft/s² ←	→ m/s²
f-shift	N/m ←	→ kgf/m	kgf ←	→ lbf	in/s² ←	→ m/s²
unshifted	N/m ←	→ lbf/ft	N ←	→ lbf	·m	·k
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_FPART_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FLoads:	MENU	Force loads conversions	Convert between units of force loads ; typical structural loads units ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		FLoads:	
F1	lbf/ft→N/m (N/m ←)	Function (monadic, linked)	lbf/ft to N/m	Convert pound force per foot to Newton per metre ; TI : N/m:	*Linear Force Density conversions*	$CONV_{HP}$		
F2	N/m→lbf/ft (→ lbf/ft)	Function (monadic, linked)	N/m to lbf/ft	Convert Newton per metre to pound force per foot ; TI : lbf/ft:	*Linear Force Density conversions*	$CONV_{HP}$		
F3	lbf→N (N ←)	Function (monadic, linked)	lbf to N	Convert pound force to Newton ; TI : N:	*Force conversions*	$CONV_{HP}$		
F4	N→lbf (→ lbf)	Function (monadic, linked)	N to lbf	Convert Newton to pound force ; TI : lbf:	*Force conversions*	$CONV_{HP}$		
F5	·m	Command (nonpgm)	milli	Factor 10^{-3}	*Numeric input*			
F6	·k	Command (nonpgm)	kilo	Factor 10^{3}	*Numeric input*			
fF1	kgf/m→N/m (N/m ←)	Function (monadic, linked)	kgf/m to N/m	Convert kilogram force per metre to Newton per metre ; TI : N/m:	*Linear Force Density conversions*	$CONV_{HP}$		
fF2	N/m→kgf/m (→ kgf/m)	Function (monadic, linked)	N/m to kgf/m	Convert Newton per metre to kilogram force per metre ; TI : kgf/m:	*Linear Force Density conversions*	$CONV_{HP}$		
fF3	lbf→kgf (kgf ←)	Function (monadic, linked)	lbf to kgf	Convert pound force to kilogram force ; TI : kgf:	*Force conversions*	$CONV_{HP}$		
fF4	kgf→lbf (→ lbf)	Function (monadic, linked)	kgf to lbf	Convert kilogram force to pound force ; TI : lbf:	*Force conversions*	$CONV_{HP}$		
fF5	m/s^2→in/s^2 (in/s^2 ←)	Function (monadic, linked)	m/s^2 to in/s^2	Convert metre per second squared to inch per second squared ; TI : in/s^2:	*Acceleration conversions*	$CONV_{HP}$		
fF6	in/s^2→m/s^2 (→ m/s^2)	Function (monadic, linked)	in/s^2 to m/s^2	Convert inch per second squared to metre per second squared ; TI : m/s^2:	*Acceleration conversions*	$CONV_{HP}$		
gF1	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*	$CONV_{HP}$	Struct:	
gF2	FLoads:	MENU	Force loads conversions	Convert between units of force loads ; typical structural loads units ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		FLoads:	
gF3	kgf→N (N ←)	Function (monadic, linked)	kgf to N	Convert kilogram force to Newton ; TI : N:	*Force conversions*	$CONV_{HP}$		
gF4	N→kgf (→ kgf)	Function (monadic, linked)	N to kgf	Convert Newton to kilogram force ; TI : kgf:	*Force conversions*	$CONV_{HP}$		
gF5	m/s^2→ft/s^2 (ft/s^2 ←)	Function (monadic, linked)	m/s^2 to ft/s^2	Convert metre per second squared to foot per second squared ; TI : ft/s^2:	*Acceleration conversions*	$CONV_{HP}$		
gF6	ft/s^2→m/s^2 (→ m/s^2)	Function (monadic, linked)	ft/s^2 to m/s^2	Convert foot per second squared to metre per second squared ; TI : m/s^2:	*Acceleration conversions*	$CONV_{HP}$		

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p1	FLoads:	Link
F1	lbf/ft→N/m (N/m ←)	
F2	N/m→lbf/ft (→ lbf/ft)	
F3	lbf→N (N ←)	
F4	N→lbf (→ lbf)	
F5	·m	
F6	·k	
f F1	kgf/m→N/m (N/m ←)	
f F2	N/m→kgf/m (→ kgf/m)	
f F3	lbf→kgf (kgf ←)	
f F4	kgf→lbf (→ lbf)	
f F5	m/s^2→in/s^2 (in/s^2 ←)	
f F6	in/s^2→m/s^2 (→ m/s^2)	
g F1	Struct:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Struct_page_1.pdf
g F2	FLoads:	https://47calc.com/doc/R47/Menus/R47v0_Menu_FLoads_page_1.pdf
g F3	kgf→N (N ←)	
g F4	N→kgf (→ kgf)	
g F5	m/s^2→ft/s^2 (ft/s^2 ←)	
g F6	ft/s^2→m/s^2 (→ m/s^2)	

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FPART	Select FP separator					
g-shift	FPGRP$_3$				NSPC␣ ○	
f-shift	WPER. ○	WCOM, ○	WDOT • ○	WTICK' ○	WSPC␣␣ ○	UNDR_ ○
unshifted	PER. ○	COM, ○	DOT· ○	TICK' ○	SPC␣ ⊙	NONE ○
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	FPART	MENU	Select FP separator	Select fractional part separator	*Display*		FPART	
F1	PER. ○	Setting (pgm)	FP separator period	Set fractional part separator to period	*Display*		FPER. ○	OFF
F2	COM, ○	Setting (pgm)	FP separator comma	Set fractional part separator to comma	*Display*		FCOM, ○	OFF
F3	DOT· ○	Setting (pgm)	FP separator dot	Set fractional part separator to dot	*Display*		FDOT· ○	OFF
F4	TICK' ○	Setting (pgm)	FP separator narrow tick	Set fractional part separator to narrow tick	*Display*		FTICK' ○	OFF
F5	SPC␣ ⊗	Setting (pgm)	FP separator space	Set fractional part separator to space	*Display*		FSPC␣ ⊗	ON
F6	NONE ○	Setting (pgm)	FP separator <none>	Set fractional part separator to <none> ; Info : Menu shows symbol ⌀	*Display*		FNONE ○	OFF
fF1	WPER. ○	Setting (pgm)	FP separator wide period	Set fractional part separator to wide period	*Display*		FWPER. ○	OFF
fF2	WCOM, ○	Setting (pgm)	FP separator wide comma	Set fractional part separator to wide comma	*Display*		FWCOM, ○	OFF
fF3	WDOT • ○	Setting (pgm)	FP separator wide dot	Set fractional part separator to wide dot	*Display*		FWDOT • ○	OFF
fF4	WTICK' ○	Setting (pgm)	FP separator tick	Set fractional part separator to tick	*Display*		FWTICK' ○	OFF
fF5	WSPC␣␣ ○	Setting (pgm)	FP separator double space	Set fractional part separator to double space	*Display*		FWSPC␣␣ ○	OFF
fF6	UNDR_ ○	Setting (pgm)	FP separator underscore	Set fractional part separator to underscore	*Display*		FUNDR_ ○	OFF
gF1	FPGRP$_3$	Setting (pgm)	FP group size	Set fractional part group size (2-9 digits) ; TAM : FPGRP _ TamNonReg menu	*Display*		FPGRP$_3$	3
gF2								
gF3								
gF4								
gF5	NSPC␣ ○	Setting (pgm)	FP separator narrow space	Set fractional part separator to narrow space	*Display*		FNSPC␣ ○	OFF
gF6								

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Geom:	Geometric distribution					
g-shift	STO$_P$ p					
f-shift						
unshifted	Geom$_p$		Geom$_{\triangle}$	Geom$_{\triangle}$		Geom^{-1}
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_GEV_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Geom:	MENU	Geometric distribution	Geometric probability distribution (discrete) ; TI : RegP = p =	*Probability (int)*		Geom:	
F1	$Geom_p$	Function (monadic)	Geometric pmf	Geometric probability mass function	*Probability (int)*		$Geom_p$	
F2								
F3	$Geom_{\triangle}$	Function (monadic)	Geometric cdf (lower)	Geometric cumulative distribution (lower tail)	*Probability (int)*		$Geom_{\triangle}$	
F4	$Geom_{\triangle}$	Function (monadic)	Geometric cdf (upper)	Geometric cumulative distribution (upper tail)	*Probability (int)*		$Geom_{\triangle}$	
F5								
F6	$Geom^{-1}$	Function (monadic)	Geometric qf (inverse)	Geometric inverse cumulative distribution (quantile)	*Probability (int)*		$Geom^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_P p	Command	Store p in P	Store parameter p : probability in register P ; Split screen : RegP = p =	*Probability (int)*			
gF2								
gF3								
gF4								
gF5								
gF6								

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GEV:	Generalised extreme value distribution					
g-shift	STO_M μ	STO_S σ	STO_R ξ			
f-shift						
unshifted	GEV_p		$GEV_{\triangle}$	$GEV_{\triangle}$		GEV^{-1}
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	GEV:	MENU	Generalised extreme value distribution	Generalised extreme value probability distribution (continuous) ; TI : RegM = μ = ; RegS = σ = ; RegQ = ξ =	*Probability (real)*		GEV:	
F1	GEV_p	Function (monadic)	Generalised extreme value pdf	Generalised extreme value probability density function	*Probability (real)*		GEV_p	
F2								
F3	$GEV_{◺}$	Function (monadic)	Generalised extreme value cdf (lower)	Generalised extreme value cumulative distribution (lower tail)	*Probability (real)*		$GEV_{◺}$	
F4	$GEV_{◿}$	Function (monadic)	Generalised extreme value cdf (upper)	Generalised extreme value cumulative distribution (upper tail)	*Probability (real)*		$GEV_{◿}$	
F5								
F6	GEV^{-1}	Function (monadic)	Generalised extreme value qf (inverse)	Generalised extreme value inverse cumulative distribution (quantile)	*Probability (real)*		GEV^{-1}	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M μ	Command	Store μ in M	Store parameter μ : location in register M ; Split screen : RegM = μ =	*Probability (real)*			
gF2	STO_S σ	Command	Store σ in S	Store parameter σ : scale in register S ; Split screen : RegS = σ =	*Probability (real)*			
gF3	STO_Q ξ	Command	Store ξ in Q	Store parameter ξ : shape in register Q ; Split screen : RegQ = ξ =	*Probability (real)*			
gF4								
gF5								
gF6								

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Graphs	Graphing...					
g-shift						
f-shift						
unshifted	↓X -10	↑X 10	↓Y 0	↑Y 10	Draw	Draw$^{x}_{y}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
F1	↓X -10	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↓X' :	*Plotting*		↓X	-10
F2	↑X 10	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↑X' :	*Plotting*		↑X	10
F3	↓Y 0	Variable (real)	Lower limit for Y-axis	Reserved Real variable for the lower limit for Y-axis (↓Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↓Y' :	*Plotting*		↓Y	0
F4	↑Y 10	Variable (real)	Upper limit for Y-axis	Reserved Real variable for the upper limit for Y-axis (↑Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↑Y' :	*Plotting*		↑Y	10
F5	Draw	MENU (item)	Draw (variable limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set by variables (↓X, ↑X) and Y-axis limits by variables (↓Y, ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw	
F6	Draw$^{x}_{y}$	MENU (item)	Draw (stack limits)	Draw graph for expression (or equation) entered in the equation editor ; X-axis limits set from stack (Y, X) and Y-axis limits by variables (↓Y, ↑Y) ; Info : In Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; if an equation was entered (containing "="), the left hand side is plotted	*Plotting*		Draw$^{x}_{y}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	Graphs	Link
F1	↓X -10	
F2	↑X 10	
F3	↓Y 0	
F4	↑Y 10	
F5	Draw	https://47calc.com/doc/R47/Menus/R47v0_Menu_Draw_page_1.pdf
F6	Draw$^{X}_{Y}$	https://47calc.com/doc/R47/Menus/R47v0_Menu_DrawYX_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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HIST	Histogram					
g-shift						
f-shift						
unshifted	HISTOX	HISTOY	↓BIN	nBINS	↑BIN	HPLOT
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	HIST	MENU	Histogram	Histogram functions	*Plotting and statistics*		HIST	
F1	HISTOX	Command	Histogram X	Evaluate first column of STATS and store in HISTO ; TI : ↑BIN : ; ↓BIN : ; nBINS :	*Plotting and statistics*		HISTOX	
F2	HISTOY	Command	Histogram Y	Evaluate second column of STATS and store in HISTO ; TI : ↑BIN : ; ↓BIN : ; nBINS :	*Plotting and statistics*		HISTOY	
F3	↓BIN	Command	Low bin	Low bin ; TI : ↑BIN : ; ↓BIN : ; nBINS :	*Plotting and statistics*		↓BIN	
F4	nBINS	Command	Number of bins	Number of bins in histogram ; TI : ↑BIN : ; ↓BIN : ; nBINS :	*Plotting and statistics*			
F5	↑BIN	Command	High bin	High bin ; TI : ↑BIN : ; ↓BIN : ; nBINS :	*Plotting and statistics*		↑BIN	
F6	HPLOT	MENU (item)	Histogram	Histogram plotting (programmable) ; Info : CAT.MENUS HPLOT	*Plotting and statistics*		HPLOT	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	HIST	Link
F1	HISTOX	
F2	HISTOY	
F3	↓BIN	
F4	nBINS	
F5	↑BIN	
F6	HPLOT	https://47calc.com/doc/R47/Menus/xxx1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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HOME	HOME					
g-shift	FP	IP	STOPW	ELEC	RECT ⊙	POLAR ○
f-shift	ROUND	RMD	SNAP	||	LINPOL	$e^{i\times}$
unshifted	i	$i_{\odot}$	x!	$\sqrt[x]{y}$	$10^{\times}$	$e^{\times}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	HOME	MENU	HOME	User menu to quickly access user selected menus and functions ; all buttons are user assignable ('riveted' look) ; initially populated for basic scitech options ; reset using HOME.R ; Shortcut : longpress [<f>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is indicated by the white keyboard label «HOME»)	*Customisation*		HOME	
F1	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F2	$i_{\odot}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\odot}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\odot}$	
F3	x!	Function (monadic)	Factorial x! or Γ(x+1)	For Long integers : x! ; for Reals : Γ(x+1) ; Info : Max integer: 450 (up to 1000 digits accurate) ; max real : 2123.549 956 662 463 236 31 ; integers > max are converted to reals	*Mathematics*		x!	
F4	$\sqrt[x]{y}$	Function (dyadic)	xth root	Xth root of Y	*Mathematics*		$\sqrt[x]{y}$	
F5	10^x	Function (monadic)	10 to the power x	Raise 10 to the power in the X-register	*Mathematics*		10^x	
F6	e^x	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^x	
fF1	ROUND	Function (monadic)	Round	Round number to current display format (returns Real number)	*Reals*		ROUND	
fF2	RMD	Function (dyadic)	Remainder	Remainder of division of Y by X	*Integers*		RMD	
fF3	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
fF4	||	Function (dyadic)	Parallel impedance	Parallel impedance : (X × Y) / (X + Y)	*Electrical engineering and characters*		||	
fF5	LINPOL	Function (triadic)	Linear interpolation	Linear interpolation ; also works for Complex numbers and Dates ; Info : <from> ENTER <towards> ENTER <at> (fraction) LINPOL	*Mathematics*		LINPOL	
fF6	e^{ix}	Function (monadic)	Euler's formula	Rotate complex unit vector by X radians : e^{ix} = cos(x) + i sin(x) ; Info : i or j displayed in stack and on soft buttons	*Mathematics*	CPXj	e^{ix}	
gF1	FP	Function (monadic)	Fractional Part	Fractional Part of real number ; Shortcut : #TAM [LN] (F) for closed number	*Fractions*		FP	
gF2	IP	Function (monadic)	Integer Part	Integer Part of number (returns Real number) ; Shortcut : #TAM [R↓] (I) for closed number	*Fractions*		IP	
gF3	STOPW	App	Stopwatch	Stopwatch with running time, counter and countdown (playing BEEP after running down) ; SBI : ⏱	*Time functions*	RUNTIM	STOPW	
gF4	ELEC	MENU	Electrical engineering	Electrical engineering functions and custom programs ; Ref : https://47calc.com/doc/Application%20Notes/AN0006_C47_R47_JM_ELEC.pdf	*Electrical engineering*		ELEC	
gF5	RECT ⊚	Setting (pgm)	Rectangular notation	Switch on rectangular notation ; Info : SBI ⊾ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊾	*Complex and coordinates*	POLAR	RECT ⊚	ON
gF6	POLAR ○	Setting (pgm)	Polar notation	Switch on polar notation ; Info : SBI ⊾ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊙	*Complex and coordinates*	POLAR	POLAR ○	OFF

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p1	HOME	Link
F1	i	
F2	$i_{\otimes}$	
F3	x!	
F4	$\sqrt[x]{y}$	
F5	10^x	
F6	e^x	
f F1	ROUND	
f F2	RMD	
f F3	SNAP	
f F4	||	
f F5	LINPOL	
f F6	e^{ix}	
g F1	FP	
g F2	IP	
g F3	STOPW	
g F4	ELEC	https://47calc.com/doc/R47/Menus/R47v0_Menu_ELEC_page_1.pdf
g F5	RECT ⊙	
g F6	POLAR ○	

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HPLOT	Histogram					
g-shift						
f-shift						
unshifted	HNORM	-ZOOM$_0$				
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Hyper_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	HPLOT	MENU	Histogram	Histogram plotting (programmable)	*Plotting and statistics*		HPLOT	
F1	HNORM	Command	Histogram Normal	Fit Gauss distribution through HISTO data (programmable)	*Plotting and statistics*		HNORM	
F2	-ZOOM$_0$	Command	Zoom out on y-axis	Decrease zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; -ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Hyper:	Hypergeometric distribution					
g-shift	STO_M N	STO_N n	STO_Q K			
f-shift						
unshifted	$Hyper_p$		$Hyper_{\triangle}$	$Hyper_{\triangle}$		$Hyper^{-1}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Hyper:	MENU	Hypergeometric distribution	Hypergeometric probability distribution (discrete) ; TI : RegM = N = ; RegN = n = ; RegQ = K =	*Probability (int)*		Hyper:	
F1	$Hyper_p$	Function (monadic)	Hypergeometric pmf	Hypergeometric probability mass function	*Probability (int)*		$Hyper_p$	
F2								
F3	$Hyper_{\triangle}$	Function (monadic)	Hypergeometric cdf (lower)	Hypergeometric cumulative distribution (lower tail)	*Probability (int)*		$Hyper_{\triangle}$	
F4	$Hyper_{\triangle}$	Function (monadic)	Hypergeometric cdf (upper)	Hypergeometric cumulative distribution (upper tail)	*Probability (int)*		$Hyper_{\triangle}$	
F5								
F6	$Hyper^{-1}$	Function (monadic)	Hypergeometric qf (inverse)	Hypergeometric inverse cumulative distribution (quantile)	*Probability (int)*		$Hyper^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M N	Command	Store N in M	Store parameter N : population size in register M ; Split screen : RegM = N =	*Probability (int)*			
gF2	STO_N n	Command	Store n in N	Store parameter n : number of samples in register N ; Split screen : RegN = n =	*Probability (int)*			
gF3	STO_Q K	Command	Store K in Q	Store parameter K : number of special items in the pool in register Q ; Split screen : RegQ = K =	*Probability (int)*			
gF4								
gF5								
gF6								

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I/O	Input/Output					
g-shift	XPORTP	WRXPall	SAVEAUT		SNAP	AUDIO
f-shift	READP	LOADST	LOAD	LOADΣ	LOADSS	PRINT
unshifted	WRITEP	SAVEST	SAVE	LOADP	LOADR	LOADV
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	I/O	MENU	Input/Output	I/O functions (read/load, write/save, export program, in-export registers, SNAP, audio, print)	*Input-Output*		I/O	
F1	WRITEP	Command	Write/save program	Write/save program to backup file (.p47) in FAT for READP ; TAM : WRITEP _ TamLblOnly menu ; DMCP : File save dialog ("Save Program" -- PROGRAMS/) ; TI : Saved	*Input-Output*		WRITEP	
F2	SAVEST	Command (nonpgm)	Save full state file	Save backup file (.s47) in FAT for LOADST ; the state file contains the complete state of the calculator: all memory content (registers, variables, programs, equations), all user assignments (key assignments, user menus) and all settings ; TI : Saving state file ... ; Saved ; DMCP File save dialog ("Save Calculator State" -- STATE/)	*Input-Output*		SAVEST	
F3	SAVE	Command (nonpgm)	Save full backup	Save full backup to file SAVFILES/R47.sav in FAT ; TI : Saved ; Directory : SAVFILES/	*Input-Output*		SAVE	
F4	LOADP	Command (nonpgm)	Load programs	Load programs from SAVE file SAVFILES/R47.sav in FAT ; TI : Programs and equations loaded ; appended ; Directory : SAVFILES/	*Input-Output*		LOADP	
F5	LOADR	Command (nonpgm)	Load registers	Load registers from SAVE file SAVFILES/R47.sav in FAT ; TI : Global and local registers loaded ; (w/ local flags ; Directory : SAVFILES/	*Input-Output*		LOADR	
F6	LOADV	Command (nonpgm)	Load variables	Load variables from SAVE file SAVFILES/R47.sav in FAT ; TI : User variables loaded ; Directory : SAVFILES/	*Input-Output*		LOADV	
fF1	READP	Command	Read/load program	Read/load program from WRITEP backup file (.p47) in FAT ; TI : Program file loaded ; DMCP File open dialog ("Load Program" -- PROGRAMS/)	*Input-Output*		READP	
fF2	LOADST	Command (nonpgm)	Load state	Load state from SAVEST backup file (.s47) in FAT and clear USER mode ; if full state, presenting "WARNING: Current calculator state will be lost. Press [ENTER] to confirm." ; key assignments will be ignored when loading from a state file created on a different model (C47 versus R47 and vice versa) ; TI : Loading state file ... ; State file loaded ; DMCP File open dialog ("Load Calculator State" -- STATE/)	*Input-Output*		LOADST	
fF3	LOAD	Command (nonpgm)	Load full backup	Load full backup from SAVE file SAVFILES/R47.sav in FAT and auto-clear USER mode ; key assignments will be ignored when loading from a backup file created on a different model (C47 versus R47 and vice versa) ; TI : Backup restored + <version info> ; Directory : SAVFILES/	*Input-Output*		LOAD	
fF4	LOADΣ	Command (nonpgm)	Load Sigma registers	Load Sigma registers from SAVE file SAVFILES/R47.sav in FAT ; TI : Loading stats ... ; Statistical data loaded ; Directory : SAVFILES/	*Input-Output*		LOADΣ	
fF5	LOADSS	Command (nonpgm)	Load system state	Load system state from SAVE file SAVFILES/R47.sav in FAT ; TI : System settings loaded ; Directory : SAVFILES/	*Input-Output*		LOADSS	
fF6	PRINT	MENU	Printing	Printing functions ; Info : Printing is available for new models and simulator, but is currently available on DM42 hardware only in some packages ; Ref : https://47calc.com/doc/Application%20Notes/AN0021_C47_R47_DL_Printing.pdf	*Printing*		PRINT	
gF1	XPORTP	Command	Export program	Export program to rich text format flle (.rtf) in FAT ; TAM : XPORTP _ TamLblOnly menu ; DMCP : File save dialog ("Export Program RTF" -- PROGRAMS/) ; TI : Saved	*Input-Output*		XPORTP	
gF2	WRXPall	Command (SIM)	Write/save & export all	Write/save & export all programs as binary and rich text files to PROGRAMS/ALLPGMS/ in FAT ; simulator only ; Info : TI : Only available on the simulator -- is raised when this command is performed on the hardware	*Input-Output*		WRXPall	
gF3	SAVEAUT	Command (nonpgm, HW)	Save autoload file	Save autoload file to file SAVFILES/R47auto.sav in FAT ; hardware only ; TI : Saved ; Directory : SAVFILES/ ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*Input-Output*		SAVEAUT	
gF4								
gF5	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
gF6	AUDIO	MENU	Audio	Audio commands	*Input-Output*		AUDIO	

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p1	I/O	Link
F1	WRITEP	
F2	SAVEST	
F3	SAVE	
F4	LOADP	
F5	LOADR	
F6	LOADV	
fF1	READP	
fF2	LOADST	
fF3	LOAD	
fF4	LOADΣ	
fF5	LOADSS	
fF6	PRINT	https://47calc.com/doc/R47/Menus/R47v0_Menu_PRINT_page_1.pdf
gF1	XPORTP	
gF2	WRXPall	
gF3	SAVEAUT	
gF4		
gF5	SNAP	
gF6	AUDIO	https://47calc.com/doc/R47/Menus/R47v0_Menu_AUDIO_page_1.pdf

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I/O	Input/Output					
g-shift						
f-shift						
unshifted	EXPreg	EXPstk	EXPltr	EXPnrg	EXPxfnx	IMPORTr
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	I/O	MENU	Input/Output	I/O functions (read/load, write/save, export program, in-export registers, SNAP, audio, print)	*Input-Output*		I/O	
F1	EXPreg	Command	Export register or variable	Export register or variable to text data file (.d47) in FAT ; TAM : EXPreg __ Tam menu ; Info : DMCP : File save dialog ("Export Register File" -- DATA/) ; TI : Data file saved	*Input-Output*		EXPreg	
F2	EXPstk	Command	Export stack	Export stack (8 or 4 registers, depending on flag SSIZE8) to text data file (.d47)in FAT ; Info : DMCP : File save dialog ("Export Register File" -- DATA/) ; TI : Data file saved ; SBI : 8 ; 4	*Input-Output*	SSIZE8	EXPstk	
F3	EXPltr	Command	Export lettered registers	Export lettered registers A-Z to text data file (.d47) in FAT ; Info : DMCP : File save dialog ("Export Register File" -- DATA/) ; TI : Data file saved	*Input-Output*		EXPltr	
F4	EXPnrg	Command	Export n registers	Export n registers starting with R00 to text data file (.d47) in FAT ; TAM : EXPnrg ___ TamNonReg menu ; Info : DMCP : File save dialog ("Export Register File" -- DATA/) ; TI : Data file saved	*Input-Output*		EXPnrg	
F5	EXPxfnx	Command	Export XFN	Export value of virtual compound data type in XYZ to text data file (.d47) in FAT ; Info : DMCP : File save dialog ("Export Register File" -- DATA/) ; TI : Data file saved	*Input-Output*		EXPxfnx	
F6	IMPORTr	Command	Import registers	Import registers from text data file (.d47), to destination address specified in the file ; Info : DMCP : File open dialog ("Import Register File" -- DATA/) ; TI : Data file loaded ; Ref : https://47calc.com/doc/Application%20Notes/AN0025_C47_R47_JM_d47_fileformat.pdf	*Input-Output*		IMPORTr	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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INFO	Information					
g-shift						MENU#
f-shift	WHO	BATT	DISK	VOL#	🖶DLAY#	STATE
unshifted	VERS	LSTERR	LASTT	KTYP	LocR#	MEM
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	INFO	MENU	Information	System information and some information about the value in the X-register	*Information*		INFO	
F1	VERS	Command (nonpgm)	Version	Show firmware version ; TI : Firmware version	*System*		VERS	
F2	LSTERR	Command	Last error	Retain error code of last function or command executed ; returns 0 for no error ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Errors_and_messages.pdf ; Info : returns error code even when IGN1ER (Ignore one error) is SET	*Information*		LSTERR	
F3	LASTT	Command	Last Ticks	Get number of ticks for the previous operation (command, function, program) ; Info : One tick is 100 ms	*System*		LASTT	
F4	KTYP	Command (logical)	Key type?	Get key type for key code returned by KEY? ; TAM : KTYP __ Tam menu ; Info : https://47calc.com/doc/R47/Reference/R47v0_KeyType.pdf	*Programming*		KTYP	
F5	LocR#	Command	Get number of local registers	Get number of local registers (current routine) ; Info : Set by LocR	*Registers*		LocR#	
F6	MEM	Command	Memory (RAM)	Get amount of free RAM memory, in bytes ; TI : Bytes =	*System*		MEM	
fF1	WHO	Command (nonpgm)	Who	Show calculator development team and contributor's names ; TI : Team names	*System*		WHO	
fF2	BATT	Command (HW)	Battery voltage	Get battery voltage ±1 mV ; hardware only ; TI : V = ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*System*		BATT	
fF3	DISK	Command (HW)	Disk state	Get DMCP status of the FAT disk ; hardware only ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*System*		DISK	
fF4	VOL#	Command (HW)	Get volume	Get volume (0-11) ; hardware only (DMCP setting) ; Info : Set by VOL ; Error 126 -- Not available on the simulator -- is raised when this setting is performed on the simulator	*Input-Output*		VOL#	11
fF5	🖶DLAY#	Command	Get printer delay	Get printer delay	*Printing*			
fF6	STATE	Command	Last statefile loaded	Get name of last full statefile or backup loaded from STATE/<state>.s47, SAVFILES/R47.sav or SAVFILES/R47auto.sav ; TI : Last full state file loaded: <date>: <file>	*Input-Output*		STATE	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	MENU#	Command	Get current menu	Get current menu name ; followed by ↵ and page number if 2 or higher	*Programming*		MENU#	

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INFO	Information					
g-shift	J/G#	WOY#				
f-shift	RNG#	HIDE#	SDIGS#	FDIGS#	BestF#	WSIZE#
unshifted	TYPE	DIMN#	NEIGHB	ULP	SSIZE#	RMODE#
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	INFO	MENU	Information	System information and some information about the value in the X-register	*Information*		INFO	
F1	TYPE	Command	Data type	Get datatype of value in X, expressed as a numeric typecode m.nop, where m : 0-9 ; n : 0-5 or 2-16 ; o : 0-4 ; p : 0-2 ; TI : <type> ; Info : note that some datatypes have subcodes ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Information*		TYPE	
F2	DIMN#	Command	Matrix dimension? (named)	Get dimensions of matrix in register or variable ; TAM : M.DIMN# __ Tam menu	*Matrix operations*		M.DIMN#	
F3	NEIGHB	Function (dyadic)	Neighbour	Get neigbour value of X compared to Y (next integer or next machine representable Real number)	*Mathematics*		NEIGHB	
F4	ULP	Function (monadic)	Unit in the last place	Get minimum difference to next or previous machine representable real, as power of ten ; Info : ULP is for Real numbers in X ; result is displayed as ≈0. because of default HIDE and RNG settings, use SHOW to view result	*Mathematics*		ULP	10^{-6176}
F5	SSIZE#	Command	Get Stack size	Get Stack size ; Info : Set by SSIZE4 or SSIZE8 ; Flag SSIZE8 is default SET ; SBI : 8 ; 4	*Stack*	SSIZE8	SSIZE#	8
F6	RMODE#	Command	Get rounding mode	Get floating point rounding mode ; Info : Set by RMODE	*Reals*		RMODE#	0
fF1	RNG#	Command	Get number range	Get number range as 10^{nn}, where nn in [99, 6145] ; Info : Set by RNG	*Reals*		RNG#	
fF2	HIDE#	Command	Get hide parameter	Get parameter to hide small Real numbers or parts ; Info : Set by HIDE	*Display*		HIDE#	0
fF3	SDIGS#	Command	Get significant digits	Get the number of significant digits (1-34) for rounding after each operation ; Info : Set by SDIGS	*Mathematics*		SDIGS#	34
fF4	FDIGS#	Command	Get significant digits for fractions	Get the number of significant digits (1-34) used by the approximations of the fraction modes ; Info : Set by FDIGS	*Fractions*		FDIGS#	34
fF5	BestF#	Command	Get Best Fit	Get parameter for which models are selected in the LR analysis ; Info : Set in menu MODEL	*Plotting and curve fitting*		BestF#	
fF6	WSIZE#	Command	Get word size	Get word size in bits, for Short integer (8.02-8.16) ; TI : Bits = ; Info : set by WSIZE	*Bits and bytes*		WSIZE#	64
gF1	J/G#	Command	Get Julian-Gregorian transition	Get the day that Julian date changes over to Gregorian date ; Info : Set by J/G	*Time functions*		J/G#	1752-09-14
gF2	WOY#	Command	Get Week of Year rule	Get Week of Year rule (default : WOY_{ISO}, week starts on Monday and week number depends on the first Thursday ; returns 1.4)	*Time functions*		WOY#	1.4
gF3								
gF4								
gF5								
gF6								

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INFO	Information					
g-shift						
f-shift	ADM_0	ISM_2	DF_0	$NDEC_3$	$DMXX_{64}$	
unshifted	ADM#	ISM#	DF#	NDEC#	DMX#	
Page 3	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	INFO	MENU	Information	System information and some information about the value in the X-register	*Information*		INFO	
F1	ADM#	Command	Get angular display mode	Get angular display mode ; set interactively from menu TRG_R47 formats or from catalog (DEG ; D.MS ; RAD ; MULπ ; GRAD) and by ADM ; Info : DEG : 0 ; D.MS : 1 ; RAD : 2 ; MULπ : 3 ; GRAD : 4 ; SBI : ° ; ″ ; ʳ ; ᵐʳ ; ᵍ	*Angle tagging or conversion*		ADM#	0
F2	ISM#	Command	Get integer sign mode	Get integer sign mode ; set interactively from menu BITSET (1COMPL ; 2COMPL ; SIGNMT ; UNSIGN) and by ISM ; Info : 1COMPL: 1 ; 2COMPL: 2 ; SIGNMT: -1 ; UNSIGN: 0	*Integers*		ISM#	2
F3	DF#	Command	Get real number display format	Get real number display format ; set interactively from menu MLoads: (formats FIX ; SCI ; ENG ; UNIT ; SIG ; ALL) and by DF ; Info : FIX : 1 ; SCI : 2 ; ENG : 3 ; UNIT : 5 ; SIG : 4 ; ALL : 0	*Reals*		DF#	0
F4	NDEC#	Command	Get number of digits displayed	Get number of digits displayed ; set by DSP or interactively from menu MLoads: (parameter for FIX ; SCI ; ENG ; UNIT ; SIG ; ALL) and by NDEC ; Info : Range is [0, 19]	*Display*		NDEC#	3
F5	DMX#	Command	Get max denominator for fractions	Get max denominator for fractions ; set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3]fF5 (DMXX) ; Info : Range is [2, 9999] or 0, indicating DMXmax = 32500 ; SBI is shown if flag SBfrac is SET ; SBI : /nnnn ; /max	*Fractions*		DMX#	64
F6								
fF1	ADM_0	Command	Set angular display mode	Set angular display mode to X ; also set interactively from menu TRG_R47 formats or from catalog (DEG ; D.MS ; RAD ; MULπ ; GRAD) ; Info : DEG : 0 ; D.MS : 1 ; RAD : 2 ; MULπ : 3 ; GRAD : 4 ; SBI : ° ; ″ ; ʳ ; ᵐʳ ; ᵍ	*Angle tagging or conversion*		ADM_0	0
fF2	ISM_2	Command	Set integer sign mode	Set integer sign mode to X ; also set interactively from menu BITSET (1COMPL ; 2COMPL ; SIGNMT ; UNSIGN) ; Info : 1COMPL: 1 ; 2COMPL: 2 ; SIGNMT: -1 ; UNSIGN: 0	*Integers*		ISM_2	2
fF3	DF_0	Command	Set real number display format	Set real number display format to X ; also set interactively from menu MLoads: (formats FIX ; SCI ; ENG ; UNIT ; SIG ; ALL) ; Info : FIX : 1 ; SCI : 2 ; ENG : 3 ; UNIT : 5 ; SIG : 4 ; ALL : 0	*Reals*		DF_0	0
fF4	$NDEC_3$	Command	Set number of digits displayed	Set number of digits displayed to X ; also set by DSP or interactively from menu MLoads: (parameter for FIX ; SCI ; ENG ; UNIT ; SIG ; ALL) ; Info : Range is [0, 19]	*Display*		$NDEC_3$	3
fF5	$DMXX_{64}$	Command	Set max denominator for fractions	Set max denominator for fractions to value in X ; maximum value of 32500 is set by value 0 in X, stored as 0 and displayed as $DMXX_0$; also set interactively from menu DISP (DMX TAM variant) ; Info : Range is [2, 9999] or 0, indicating DMXmax = 32500 ; SBI is shown if flag SBfrac is SET ; SBI : /nnnn ; /max	*Fractions*		$DMXX_{64}$	64
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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∫f	Integrator [EQN]					
g-shift						
f-shift						
unshifted	<var1>	<var2>*	<var...>		Tool∫	$\int_y^x$
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	∫f	MENU	Integrator [EQN]	Integrator (variables) menu for the algebraic expression entered in the equation editor ; enter value and press <var$_n$> button(s) to set variables, then press button for variable to be used by the integrator in menu Tool∫ or this menu ; if only one variable exists it will be selected and starred automatically ; tolerance set by variable ACC ; Info : TI : "Select Integrator Variable" is presented if Tool∫ is activated without a variable having been selected first	*Integrator*		∫f	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 of the expression entered in EQ.NEW (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, of the expression entered in EQ.NEW ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5	Tool∫	MENU	Integrator tools [EQN]	Integrator tools and parameter settings	*Integrator*		Tool∫	
F6	$\int_y^x$	Command	Integrator (stack limits)	Solve the integral for the expression entered in the equation editor or the RPN program (with MVAR variables) selected in TAM ; in Program Entry Mode, RPN program must be specified by PGMINT ; integrator limits set from stack (Y, X) ; tolerance set by variable ACC ; TAM : $\int_y^x$ __ Tam menu (in PEM, to specify variable to integrate for) ; TI : Accuracy ≈ ; Info : ∫≈ displays the accumulated integral sum, the current accuracy achieved, the level counter from 7 down to 0 and an iteration counter ; shown if flag MONIT is SET	*Integrator*	INTING	$\int_y^x$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	∫f	Link
F1	<var$_1$>	
F2	<var$_2$>*	
F3	<var...>	
F4		
F5	Tool∫	https://47calc.com/doc/R47/Menus/R47v0_Menu_ToolInt_EQN_page_1.pdf
F6	$\int_y^x$	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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∫fd (MVAR)	Integrator (RPN)					
g-shift						
f-shift						
unshifted	<var1>	<var2>*	<var...>			
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Printer_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	∫f d (MVAR)	MENU	Integrator (RPN)	Integrator (variables) menu for the RPN program (with MVAR variables) selected with TamLblOnly menu ; enter value and press <var$_n$> button(s) to set variables, then press button for variable to be used by the integrator in menu Tool∫ ; in Program Entry Mode, the RPN program must be specified by PGMINT and the variable with the Tam menu ; tolerance set by variable ACC ; TAM : ∫f d _ TamLblOnly menu (uses Tam menu in PEM, to specify variable to integrate for)	*RPN Calculus and plotting*		∫f d	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 as created by MVAR (in RPN program) (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5								
F6								
f F1								
f F2								
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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INTS	Integers					
g-shift	DBL÷	DBLR	DBL×	^MOD	SINT	GCD
f-shift	IDIV	RMD	MOD	×MOD	LINT	LCM
unshifted	A	B	C	D	E	F
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_IPART_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	INTS	MENU	Integers	Short integer functions	*Integers*		INTS	
F1	A	Character	A	Digit A ; Fontcode : 0041_{16}	*Numeric input and characters*			
F2	B	Character	B	Digit B ; Fontcode : 0042_{16}	*Numeric input and characters*			
F3	C	Character	C	Digit C ; Fontcode : 0043_{16}	*Numeric input and characters*			
F4	D	Character	D	Digit D ; Fontcode : 0044_{16}	*Numeric input and characters*			
F5	E	Character	E	Digit E ; Fontcode : 0045_{16}	*Numeric input and characters*			
F6	F	Character	F	Digit F ; Fontcode : 0046_{16}	*Numeric input and characters*			
fF1	IDIV	Function (dyadic)	Integer divide	Integer divide	*Integers*		IDIV	
fF2	RMD	Function (dyadic)	Remainder	Remainder of division of Y by X	*Integers*		RMD	
fF3	MOD	Function (dyadic)	Modulo	Y modulo X	*Mathematics*		MOD	
fF4	×MOD	Function (triadic)	ZxY modulo X	Z x Y, modulo X	*Integers*		×MOD	
fF5	LINT	Function (monadic)	Long integer	Convert to Long integer (0) ; Info : Max 1000 digits	*Integers*		LINT	
fF6	LCM	Function (dyadic)	Least common multiple	Least common multiple of X and Y	*Integers*		LCM	
gF1	DBL÷	Function (triadic)	Double divide	Double word length divide : (Z - least, Y - most significant digits) / (X)	*Integers*		DBL÷	
gF2	DBLR	Function (triadic)	Double remainder	Double word length remainder	*Integers*		DBLR	
gF3	DBL×	Function (dyadic)	Double multiply	Double word length multiply (result in Y - least and X - most significant digit)	*Integers*		DBL×	
gF4	^MOD	Function (triadic)	Z^Y modulo X	Z^Y modulo X	*Integers*		^MOD	
gF5	SINT	Function (monadic)	Short integer	Convert to Short integer (8.02-8.16)	*Integers*		SINT	
gF6	GCD	Function (dyadic)	Greatest common divisor	Greatest common divisor of X and Y	*Integers*		GCD	

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IPART	Select IP separator					
g-shift	IPGRP$_3$	IPGRP1$_0$	IPGRP1x$_0$		NSPC␣ ○	
f-shift	WPER. ○	WCOM, ○	WDOT • ○	WTICK' ○	WSPC␣␣ ○	UNDR_ ○
unshifted	PER. ○	COM, ○	DOT· ○	TICK' ○	SPC␣ ⊙	NONE ○
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_KEYS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	IPART	MENU	Select IP separator	Select integer part separator	*Display*		IPART	
F1	PER. ○	Setting (pgm)	IP separator period	Set integer part separator to period	*Display*		IPER. ○	OFF
F2	COM, ○	Setting (pgm)	IP separator comma	Set integer part separator to comma	*Display*		ICOM, ○	OFF
F3	DOT· ○	Setting (pgm)	IP separator dot	Set integer part separator to dot	*Display*		IDOT· ○	OFF
F4	TICK' ○	Setting (pgm)	IP separator narrow tick	Set integer part separator to narrow tick	*Display*		ITICK' ○	OFF
F5	SPC␣ ◉	Setting (pgm)	IP separator space	Set integer part separator to space	*Display*		ISPC␣ ◉	ON
F6	NONE ○	Setting (pgm)	IP separator <none>	Set integer part separator to <none> ; Info : Menu shows symbol ⌀	*Display*		INONE ○	OFF
fF1	WPER. ○	Setting (pgm)	IP separator wide period	Set integer part separator to wide period	*Display*		IWPER. ○	OFF
fF2	WCOM, ○	Setting (pgm)	IP separator wide comma	Set integer part separator to wide comma	*Display*		IWCOM, ○	OFF
fF3	WDOT • ○	Setting (pgm)	IP separator wide dot	Set integer part separator to wide dot	*Display*		IWDOT • ○	OFF
fF4	WTICK' ○	Setting (pgm)	IP separator tick	Set integer part separator to tick	*Display*		IWTICK' ○	OFF
fF5	WSPC␣␣ ○	Setting (pgm)	IP separator double space	Set integer part separator to double space	*Display*		IWSPC␣␣ ○	OFF
fF6	UNDR_ ○	Setting (pgm)	IP separator underscore	Set integer part separator to underscore	*Display*		IUNDR_ ○	OFF
gF1	$IPGRP_3$	Setting (pgm)	IP group size	Set integer part group size (2-9 digits) ; not for SCI or ENG notation ; TAM : IPGRP _ TamNonReg menu	*Display*		$IPGRP_3$	3
gF2	$IPGRP1_0$	Setting (pgm)	IP first group size	Set number of digits of the first group to the left of the radix to be different from IPGRP ; a value of 0 means this setting is ignored (IPGRP is followed) ; TAM : IPGRP1 _ TamNonReg menu	*Display*		$IPGRP1_0$	0
gF3	$IPGRP1x_0$	Setting (pgm)	IP first group extension	Allow the first group to the left of the radix to contain one more digit (up to 1-9) than the number of digits specified by IPGRP1 ; a value of 0 means this setting is ignored (IPGRP1 is followed) ; TAM : IPGRP1x _ TamNonReg menu ; Info : e.g. with first group size set to 3 and extension set to 2, up to a value of 2999 the digits remain grouped (without separator), but 3 000 and higher will not (separator space is assumed here)	*Display*		$IPGRP1x_0$	0
gF4								
gF5	NSPC␣ ○	Setting (pgm)	IP separator narrow space	Set integer part separator to narrow space	*Display*		INSPC␣ ○	OFF
gF6								

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KEYS	Keys					
g-shift						
f-shift	f g ▣	f^g ▭ ▢	f^g g ▢	▭ f^g ▢		
unshifted	▭ KEY	RIBBONS	RESETS	ASN	USER ▢	KEYMAP
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Keyboards_side_by_side.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0018_C47_R47_Keyboard.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	KEYS	MENU	Keys	Layouts, ribbons and special key assignments ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Keyboards_side_by_side.pdf	*Customisation*		KEYS	
F1	▫ KEY	MENU	Special <none> hotkey assignments	Special hotkey assignments to key <none> in NORMAL mode ; Info : NORMAL-assignable hotkey is not available in layout R47v0, pressing any of the menu buttons returns Error 47 -- This item cannot be assigned here	*Customisation*		▫Σ+KEY	
F2	RIBBONS	MENU	Ribbons	Selection of ribbons for MyM (MyMenu) ; Info : Ribbons are predefined sets of buttons to assign to the primary (unshifted) row of MyM (MyMenu)	*Customisation*		RIBBONS	
F3	RESETS	MENU	Resets	Reset user menus to defaults ; delete user keyboard assignments	*Cleanup*		RESETS	
F4	ASN	Command	Assign	Assign function, menu or character to a keyboard key or to a button in a menu ; for options including creating user defined menus, see reference page ; TAM : ASSIGN α (f[XEQ]) activates "ASSIGN '_ TamAlpha menu _" and allows a function or command to be spelled, to assign it to a key or button ; Info : "ASSIGN _ _" indicates that a key or button can be pressed to assign it to another button or key ; use button ASN ([ALPHA.1]fF4) for character assignments in Alpha Input Mode ; this button is not shown in Program Entry Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf	*Text input*		ASSIGN	
F5	USER ▫	Setting	USER mode	Switch on USER mode ; not programmable - in PEM, use flag USER ; Info : To assign USER to a key or button, use ASN (g[DRG]) and spell the name as 'USER' ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf ; SBI : U	*Customisation*	USER		OFF
F6	KEYMAP	Browser	Keyboard map	Browse keyboard map (default USER mode) ; also showing special NORMAL hotkey assignment from menu ▫ KEY ; if KEYMAP is activated when in Alpha Input Mode or Equation Input Mode, the alpha keyboard mappings are shown only (default NORMAL mode, starting with alpha g-shift) ; Info : Press and hold key [.] to view USER or NORMAL (STD) keys ; browse using [↑] and [↓] ; press [EXIT] to exit Keyboard map ; Ref : https://47calc.com/doc/R47/Reference/R47v0_KEYMAP.pdf	*Catalog*		KEYMAP	
fF1	f g ▣	Layout	f g layout	f g keyboard layout (R47v0) ; selecting this layout changes base keys and deletes all keyboard assignments (KEYS.R) ; TI : R47v0 L.Shift is f, R.Shift is g ; the layout is kept even on RESET	*Customisation*			ON
fF2	f^g ▫ ▫	Layout	f^g ▫ layout	f^g ▫ keyboard layout (R47v1) ; selecting this layout changes base keys and deletes all keyboard assignments (KEYS.R) ; ▫ denotes the Black key : in the R47 layouts: R47v1 (f^g ▫) and R47v3 (▫ f^g), the [▫] key is the hotkey that can be used for special key assignments in NORMAL mode, using menu ▫ KEY ; TI : R47v1 L.Shift is f^g, R.Shift is ▫ ; the layout is kept even on RESET	*Customisation*			OFF
fF3	f^g g ▫	Layout	f^g g layout	f^g g keyboard layout (R47v2) ; selecting this layout changes base keys and deletes all keyboard assignments (KEYS.R) ; TI : R47v2 L.Shift is f^g, R.Shift is g ; the layout is kept even on RESET	*Customisation*			OFF
fF4	▫ f^g ▫	Layout	▫ f^g layout	▫ f^g keyboard layout (R47v3) ; selecting this layout changes base keys and deletes all keyboard assignments (KEYS.R) ; ▫ denotes the Black key : in the R47 layouts: R47v1 (f^g ▫) and R47v3 (▫ f^g), the [▫] key is the hotkey that can be used for special key assignments in NORMAL mode, using menu ▫ KEY ; TI : R47v3 L.Shift is ▫, R.Shift is f^g ; the layout is kept even on RESET	*Customisation*			OFF
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	KEYS	Link
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F2	RIBBONS	https://47calc.com/doc/R47/Menus/R47v0_Menu_RIBBONS_page_1.pdf
F3	RESETS	https://47calc.com/doc/R47/Menus/R47v0_Menu_RESETS_page_1.pdf
F4	ASN	
F5	USER ◻	
F6	KEYMAP	
f F1	f g ▣	
f F2	f g ▭ ◻	
f F3	f g g ◻	
f F4	▭ f g ◻	
f F5		
f F6		
g F1		
g F2		
g F3		
g F4		
g F5		
g F6		

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L.INTS	Long integer variables					
g-shift						
f-shift						
unshifted	GRAMOD					
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	L.INTS	MENU	Long integer variables	Auto-generated catalog of variables of the specified datatype : Long integer (0)	*Catalog*		L.INTS	
F1	GRAMOD	Variable (longint)	Graphics display mode	Reserved LongInteger variable for the graphics display mode (GRAMOD) ; set interactively from menu P.FN1 (AGRAPH) ; Info : OR: 0 ; SET: 1 ; OFF: 2 ; XOR: 3	*Programming*		GRAMOD	0
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Length:	Length conversions					
g-shift	mi ←	→ nmi	mm ←	→ in	m ←	→ au
f-shift	km ←	→ nmi	m ←	→ ft	m ←	→ ly
unshifted	km ←	→ mi	m ←	→ yd	m ←	→ pc
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Length:	MENU	Length conversions	Convert between units of length ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Distance conversions*		Length:	
F1	mi→km (km ←)	Function (monadic, linked)	mi to km	Convert mile to kilometre ; TI : km:	*Distance conversions*	$CONV_{HP}$		
F2	km→mi (→ mi)	Function (monadic, linked)	km to mi	Convert kilometre to mile ; TI : mi:	*Distance conversions*	$CONV_{HP}$		
F3	yd→m (m ←)	Function (monadic, linked)	yd to m	Convert yard to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
F4	m→yd (→ yd)	Function (monadic, linked)	m to yd	Convert metre to yard ; TI : yd:	*Distance conversions*	$CONV_{HP}$		
F5	pc→m (m ←)	Function (monadic, linked)	pc to m	Convert parsec to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
F6	m→pc (→ pc)	Function (monadic, linked)	m to pc	Convert metre to parsec ; TI : pc:	*Distance conversions*	$CONV_{HP}$		
fF1	nmi→km (km ←)	Function (monadic, linked)	nmi to km	Convert nautical mile to kilometre ; TI : km:	*Distance conversions*	$CONV_{HP}$		
fF2	km→nmi (→ nmi)	Function (monadic, linked)	km to nmi	Convert kilometre to nautical mile ; TI : nmi:	*Distance conversions*	$CONV_{HP}$		
fF3	ft→m (m ←)	Function (monadic, linked)	ft to m	Convert foot to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
fF4	m→ft (→ ft)	Function (monadic, linked)	m to ft	Convert metre to foot ; TI : ft:	*Distance conversions*	$CONV_{HP}$		
fF5	ly→m (m ←)	Function (monadic, linked)	ly to m	Convert light year to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
fF6	m→ly (→ ly)	Function (monadic, linked)	m to ly	Convert metre to light year ; TI : ly:	*Distance conversions*	$CONV_{HP}$		
gF1	nmi→mi (mi ←)	Function (monadic, linked)	nmi to mi	Convert nautical mile to mile ; TI : mi:	*Distance conversions*	$CONV_{HP}$		
gF2	mi→nmi (→ nmi)	Function (monadic, linked)	mi to nmi	Convert mile to nautical mile ; TI : nmi:	*Distance conversions*	$CONV_{HP}$		
gF3	in→mm (mm ←)	Function (monadic, linked)	in to mm	Convert inch to millimetre ; TI : mm:	*Distance conversions*	$CONV_{HP}$		
gF4	mm→in (→ in)	Function (monadic, linked)	mm to in	Convert millimetre to inch ; TI : in:	*Distance conversions*	$CONV_{HP}$		
gF5	au→m (m ←)	Function (monadic, linked)	au to m	Convert astronomical unit to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
gF6	m→au (→ au)	Function (monadic, linked)	m to au	Convert metre to astronomical unit ; TI : au:	*Distance conversions*	$CONV_{HP}$		

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Length:	Length conversions					
g-shift			m ←	→ chǐ	m ←	→ fēn
f-shift			m ←	→ zhàng	m ←	→ cùn
unshifted	m ←	→ lǐ	m ←	→ yǐn		
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	Length:	MENU	Length conversions	Convert between units of length ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Distance conversions*		Length:	
F1	lǐ→m (m ←)	Function (monadic, linked)	lǐ to m	Convert lǐ to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
F2	m→lǐ (→ lǐ)	Function (monadic, linked)	m to lǐ	Convert metre to lǐ ; TI : lǐ:	*Distance conversions*	$CONV_{HP}$		
F3	yǐn→m (m ←)	Function (monadic, linked)	yǐn to m	Convert yǐn to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
F4	m→yǐn (→ yǐn)	Function (monadic, linked)	m to yǐn	Convert metre to yǐn ; TI : yǐn:	*Distance conversions*	$CONV_{HP}$		
F5								
F6								
fF1								
fF2								
fF3	zhàng→m (m ←)	Function (monadic, linked)	zhàng to m	Convert zhàng to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
fF4	m→zhàng (→ zhàng)	Function (monadic, linked)	m to zhàng	Convert metre to zhàng ; TI : zhàng:	*Distance conversions*	$CONV_{HP}$		
fF5	cùn→m (m ←)	Function (monadic, linked)	cùn to m	Convert cùn to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
fF6	m→cùn (→ cùn)	Function (monadic, linked)	m to cùn	Convert metre to cùn ; TI : cùn:	*Distance conversions*	$CONV_{HP}$		
gF1								
gF2								
gF3	chǐ→m (m ←)	Function (monadic, linked)	chǐ to m	Convert chǐ to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
gF4	m→chǐ (→ chǐ)	Function (monadic, linked)	m to chǐ	Convert metre to chǐ ; TI : chǐ:	*Distance conversions*	$CONV_{HP}$		
gF5	fēn→m (m ←)	Function (monadic, linked)	fēn to m	Convert fēn to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
gF6	m→fēn (→ fēn)	Function (monadic, linked)	m to fēn	Convert metre to fēn ; TI : fēn:	*Distance conversions*	$CONV_{HP}$		

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Length:	Length conversions					
g-shift			cm ←	→ in		
f-shift	m ←	→ nmi	m ←	→ fathom		
unshifted	m ←	→ mi	m ←	→ survey ft_{US}	mm ←	→ point
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	Length:	MENU	Length conversions	Convert between units of length ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Distance conversions*		Length:	
F1	mi→m (m ←)	Function (monadic, linked)	mi to m	Convert mile to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
F2	m→mi (→ mi)	Function (monadic, linked)	m to mi	Convert metre to mile ; TI : mi:	*Distance conversions*	$CONV_{HP}$		
F3	survey ft_{US}→m (m ←)	Function (monadic, linked)	survey ft_{US} to m	Convert US survey foot to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
F4	m→survey ft_{US} (→ survey ft_{US})	Function (monadic, linked)	m to survey ft_{US}	Convert metre to US survey foot ; TI : survey ft_{US}: ; Info : single = ey ft_{US}←	*Distance conversions*	$CONV_{HP}$		
F5	point→mm (mm ←)	Function (monadic, linked)	point to mm	Convert point to millimetre ; TI : mm:	*Distance conversions*	$CONV_{HP}$		
F6	mm→point (→ point)	Function (monadic, linked)	mm to point	Convert millimetre to point ; TI : point:	*Distance conversions*	$CONV_{HP}$		
f F1	nmi→m (m ←)	Function (monadic, linked)	nmi to m	Convert nautical mile to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
f F2	m→nmi (→ nmi)	Function (monadic, linked)	m to nmi	Convert metre to nautical mile ; TI : nmi:	*Distance conversions*	$CONV_{HP}$		
f F3	fathom→m (m ←)	Function (monadic, linked)	fathom to m	Convert fathom to metre ; TI : m:	*Distance conversions*	$CONV_{HP}$		
f F4	m→fathom (→ fathom)	Function (monadic, linked)	m to fathom	Convert metre to fathom ; TI : fathom:	*Distance conversions*	$CONV_{HP}$		
f F5								
f F6								
g F1								
g F2								
g F3	in→cm (cm ←)	Function (monadic, linked)	in to cm	Convert inch to Centimetre ; TI : cm:	*Distance conversions*	$CONV_{HP}$		
g F4	cm→in (→ in)	Function (monadic, linked)	cm to in	Convert Centimetre to inch ; TI : in:	*Distance conversions*	$CONV_{HP}$		
g F5								
g F6								

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Logis:	Logistic distribution					
g-shift	STO_M μ	STO_S s				
f-shift						
unshifted	$Logis_p$		$Logis_{\triangle}$	$Logis_{\triangle}$		$Logis^{-1}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Logis:	MENU	Logistic distribution	Logistic probability distribution (continuous) ; TI : RegM = μ = ; RegS = s =	*Probability (real)*		Logis:	
F1	$Logis_p$	Function (monadic)	Logistic pdf	Logistic probability density function	*Probability (real)*		$Logis_p$	
F2								
F3	$Logis_{◭}$	Function (monadic)	Logistic cdf (lower)	Logistic cumulative distribution (lower tail)	*Probability (real)*		$Logis_{◭}$	
F4	$Logis_{◮}$	Function (monadic)	Logistic cdf (upper)	Logistic cumulative distribution (upper tail)	*Probability (real)*		$Logis_{◮}$	
F5								
F6	$Logis^{-1}$	Function (monadic)	Logistic qf (inverse)	Logistic inverse cumulative distribution (quantile)	*Probability (real)*		$Logis^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M μ	Command	Store μ in M	Store parameter μ : location in register M ; Split screen : RegM = μ =	*Probability (real)*			
gF2	STO_S s	Command	Store s in S	Store parameter s : scale in register S ; Split screen : RegS = s =	*Probability (real)*			
gF3								
gF4								
gF5								
gF6								

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LOOP	Looping					
g-shift						
f-shift	DECR					INCR
unshifted	DSE	DSZ	DSL	ISE	ISZ	ISG
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	LOOP	MENU	Looping	Looping (programming) functions	*Programming*		LOOP	
F1	DSE	Command	Decrement skip on equal	Decrement skip on equal, using range number in register or variable (ccc.fffdd, where ccc is counter, fff is final value, dd is decrement) ; TAM : DSE __ Tam menu	*Programming*		DSE	
F2	DSZ	Command	Decrement skip on zero	Decrement skip on zero, using range number in register or variable (ccc.fffdd, where ccc is counter, fff is final value, dd is decrement) ; TAM : DSZ __ Tam menu ; Info : time values may be used as the range number, decrement is one hour	*Programming*		DSZ	
F3	DSL	Command	Decrement skip on less	Decrement skip on less, using range number in register or variable (ccc.fffdd, where ccc is counter, fff is final value, dd is decrement) ; TAM : DSL __ Tam menu	*Programming*		DSL	
F4	ISE	Command	Increment skip on equal	Increment skip on equal, using range number in register or variable (ccc.fffii, where ccc is counter, fff is final value, ii is increment) ; TAM : ISE __ Tam menu	*Programming*		ISE	
F5	ISZ	Command	Increment skip on zero	Increment skip on zero, using range number in register or variable (ccc.fffii, where ccc is counter, fff is final value, ii is increment) ; TAM : ISZ __ Tam menu ; Info : time values may be used as the range number, increment is one hour	*Programming*		ISZ	
F6	ISG	Command	Increment skip on greater	Increment skip on greater, using range number in register or variable (ccc.fffii, where ccc is counter, fff is final value, ii is increment) ; TAM : ISG __ Tam menu	*Programming*		ISG	
fF1	DECR	Command	Decrement	Decrement range number in register or variable (ccc.fffdd, where ccc is counter, fff is final value, dd is decrement), by decrement ; TAM : DECR __ Tam menu	*Programming*		DECR	
fF2								
fF3								
fF4								
fF5								
fF6	INCR	Command	Increment	Increment range number in register or variable (ccc.fffii, where ccc is counter, fff is final value, ii is increment), by increment ; TAM : INCR __ Tam menu	*Programming*		INCR	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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M_EDIT	Matrix editor					
g-shift	DELR	DELC			WRAP ⊙	GROW ○
f-shift	INSR	INSC	$i_{\odot}$	OLD	↑	↓
unshifted	ROW+1	COL+1	i	GOTO	←	→
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	M_EDIT	MENU	Matrix editor	Matrix editor ; Info : MIM = Matrix Input Mode ; [↑] or [↓] to move up or down one position ; Ref : 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead	*Matrix operations*		M_EDIT	
F1	ROW+1	Command	Add row	Add row to matrix, at the bottom edge	*Matrix operations*		M.ROW+1	
F2	COL+1	Command	Add column	Add column to matrix, at the right edge	*Matrix operations*		M.COL+1	
F3	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F4	GOTO	Command	Go to matrix element	Go to matrix element using GOTO Row ; GOTO Column ; (TAM) : GOTO Row ; GOTO Column	*Matrix operations*		M.GOTO	
F5	←	Arrow	Move left	Move left one position ; Fontcode : 2190_{16}	*Navigation and characters*			
F6	→	Arrow	Move right	Move right one position ; Fontcode : 2192_{16}	*Navigation and characters*			
fF1	INSR	Command	Insert row	Insert row into matrix, at the cursor position	*Matrix operations*		M.INSR	
fF2	INSC	Command	Insert column	Insert column into matrix, at the cursor position	*Matrix operations*		M.INSC	
fF3	$i_{\circledast}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\circledast}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\circledast}$	
fF4	OLD	Command	Old (matrix)	Revert to old element (while editing)	*Matrix operations*		M.OLD	
fF5	↑	Arrow	Move up	Move up one position ; Fontcode : 2191_{16}	*Navigation and characters*			
fF6	↓	Arrow	Move down	Move down one position ; Fontcode : 2193_{16}	*Navigation and characters*			
gF1	DELR	Command	Delete row	Delete row from matrix, at the cursor position	*Matrix operations*		M.DELR	
gF2	DELC	Command	Delete column	Delete column from matrix, at the cursor position	*Matrix operations*		M.DELC	
gF3								
gF4								
gF5	WRAP ⊛	Setting	Grow (matrix edit)	Switch on wrap (matrix edit) ; not programmable - in PEM, use flag GROW ; Info : SBI is shown if flag SBmx is SET ; SBI : wrap	*Matrix operations*	GROW	M.WRAP ⊛	ON
gF6	GROW ○	Setting	Grow (matrix edit)	Switch on grow (matrix edit) ; not programmable - in PEM, use flag GROW ; Info : SBI is shown if flag SBmx is SET ; SBI : grow	*Matrix operations*	GROW	M.GROW ○	OFF

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M_SIMQ	Matrix simultaneous equations					
g-shift						
f-shift						
unshifted	Mat A	Mat B				Mat X
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	M_SIMQ	MENU	Matrix simultaneous equations	Matrix simultaneous equations : Mat A · Mat X = Mat B, where Mat A is the equation coefficient matrix and Mat B is the equation result vector ; Mat X is the equation solution vector	*Matrix operations*		M_SIMQ	
F1	Mat A	Variable (matrix)	Matrix A	Reserved Matrix variable for the Matrix A (Mat A) ; enter equation coefficient matrix using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_A	
F2	Mat B	Variable (matrix)	Matrix B	Reserved Matrix variable for the Matrix B (Mat B) ; enter equation result vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_B	
F3								
F4								
F5								
F6	Mat X	Command	Matrix X	Create reserved Matrix variable for the Matrix X (Mat X) ; calculate equation solution vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_X	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Mass:	Mass conversions					
g-shift	kg ←	→ slug	kg ←	→ slinch	kg ←	→ blob
f-shift	kg ←	→ stone	kg ←	→ short cwt	g ←	→ tr oz
unshifted	kg ←	→ lbs	kg ←	→ cwt	g ←	→ oz
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Mass:	MENU	Mass conversions	Convert between units of mass ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Mass conversions*		Mass:	
F1	lbs→kg (kg ←)	Function (monadic, linked)	lbs to kg	Convert pound to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
F2	kg→lbs (→ lbs)	Function (monadic, linked)	kg to lbs	Convert kilogram to pound ; TI : lbs:	*Mass conversions*	$CONV_{HP}$		
F3	cwt→kg (kg ←)	Function (monadic, linked)	cwt to kg	Convert hundredweight to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
F4	kg→cwt (→ cwt)	Function (monadic, linked)	kg to cwt	Convert kilogram to hundredweight ; TI : cwt:	*Mass conversions*	$CONV_{HP}$		
F5	oz→g (g ←)	Function (monadic, linked)	oz to g	Convert ounce to gram ; TI : g:	*Mass conversions*	$CONV_{HP}$		
F6	g→oz (→ oz)	Function (monadic, linked)	g to oz	Convert gram to ounce ; TI : oz:	*Mass conversions*	$CONV_{HP}$		
fF1	stone→kg (kg ←)	Function (monadic, linked)	stone to kg	Convert stone to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
fF2	kg→stone (→ stone)	Function (monadic, linked)	kg to stone	Convert kilogram to stone ; TI : stone:	*Mass conversions*	$CONV_{HP}$		
fF3	short cwt→kg (kg ←)	Function (monadic, linked)	short cwt to kg	Convert short hundredweight to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
fF4	kg→short cwt (→ short cwt)	Function (monadic, linked)	kg to short cwt	Convert kilogram to short hundredweight ; TI : short cwt: ; Info : single = rt cwt←	*Mass conversions*	$CONV_{HP}$		
fF5	tr oz→g (g ←)	Function (monadic, linked)	tr oz to g	Convert troy ounce to gram ; TI : g:	*Mass conversions*	$CONV_{HP}$		
fF6	g→tr oz (→ tr oz)	Function (monadic, linked)	g to tr oz	Convert gram to troy ounce ; TI : tr oz:	*Mass conversions*	$CONV_{HP}$		
gF1	slug→kg (kg ←)	Function (monadic, linked)	slug to kg	Convert slug to kilogram ; this is the same conversion as $lbf{\cdot}s^2/ft$→kg on [Mass:.2] gF1 ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
gF2	kg→slug (→ slug)	Function (monadic, linked)	kg to slug	Convert kilogram to slug ; this is the same conversion as kg→$lbf{\cdot}s^2/ft$ on [Mass:.2] gF2 ; TI : slug:	*Mass conversions*	$CONV_{HP}$		
gF3	slinch→kg (kg ←)	Function (monadic, linked)	slinch to kg	Convert slinch to kilogram ; this is the same conversion as $lbf{\cdot}s^2/in$→kg on [Mass:.2] gF3 ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
gF4	kg→slinch (→ slinch)	Function (monadic, linked)	kg to slinch	Convert kilogram to slinch ; this is the same conversion as kg→$lbf{\cdot}s^2/in$ on [Mass:.2] gF4 ; TI : slinch:	*Mass conversions*	$CONV_{HP}$		
gF5	blob→kg (kg ←)	Function (monadic, linked)	blob to kg	Convert blob to kilogram ; this is the same conversion as $lbf{\cdot}s^2/in$→kg on [Mass:.2] gF3 ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
gF6	kg→blob (→ blob)	Function (monadic, linked)	kg to blob	Convert kilogram to blob ; this is the same conversion as kg→$lbf{\cdot}s^2/in$ on [Mass:.2] gF4 ; TI : blob:	*Mass conversions*	$CONV_{HP}$		

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Mass:	Mass conversions					
g-shift	kg ←	→ lbf·s²/ft	kg ←	→ lbf·s²/in	kg ←	→ lbf·s²/in
f-shift	g ←	→ carat	kg ←	→ jīn	kg ←	→ liǎng
unshifted	kg ←	→ long ton	kg ←	→ short ton	kg ←	→ tonne
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MatPrp_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	Mass:	MENU	Mass conversions	Convert between units of mass ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Mass conversions*		Mass:	
F1	long ton→kg (kg ←)	Function (monadic, linked)	long ton to kg	Convert long ton to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
F2	kg→long ton (→ long ton)	Function (monadic, linked)	kg to long ton	Convert kilogram to long ton ; TI : long ton: ; Info : single = ng ton←	*Mass conversions*	$CONV_{HP}$		
F3	short ton→kg (kg ←)	Function (monadic, linked)	short ton to kg	Convert short ton to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
F4	kg→short ton (→ short ton)	Function (monadic, linked)	kg to short ton	Convert kilogram to short ton ; TI : short ton: ; Info : single = rt ton←	*Mass conversions*	$CONV_{HP}$		
F5	tonne→kg (kg ←)	Function (monadic, linked)	tonne to kg	Convert metric tonne to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
F6	kg→tonne (→ tonne)	Function (monadic, linked)	kg to tonne	Convert kilogram to metric tonne ; TI : tonne:	*Mass conversions*	$CONV_{HP}$		
fF1	carat→g (g ←)	Function (monadic, linked)	carat to g	Convert carat to gram ; TI : g:	*Mass conversions*	$CONV_{HP}$		
fF2	g→carat (→ carat)	Function (monadic, linked)	g to carat	Convert gram to carat ; TI : carat:	*Mass conversions*	$CONV_{HP}$		
fF3	jīn→kg (kg ←)	Function (monadic, linked)	jīn to kg	Convert jīn to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
fF4	kg→jīn (→ jīn)	Function (monadic, linked)	kg to jīn	Convert kilogram to jīn ; TI : jīn:	*Mass conversions*	$CONV_{HP}$		
fF5	liǎng→kg (kg ←)	Function (monadic, linked)	liǎng to kg	Convert liǎng to kilogram ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
fF6	kg→liǎng (→ liǎng)	Function (monadic, linked)	kg to liǎng	Convert kilogram to liǎng ; TI : liǎng:	*Mass conversions*	$CONV_{HP}$		
gF1	lbf·s²/ft→kg (kg ←)	Function (monadic, linked)	lbf·s²/ft to kg	Convert lbf·s²/ft (slug) to kilogram ; this is the same conversion as slug→kg on [Mass:.1] gF1 ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
gF2	kg→lbf·s²/ft (→ lbf·s²/ft)	Function (monadic, linked)	kg to lbf·s²/ft	Convert kilogram to lbf·s²/ft (slug) ; this is the same conversion as kg→slug on [Mass:.1] gF2 ; TI : lbf·s²/ft: ; Info : single = bf·s²/ft←	*Mass conversions*	$CONV_{HP}$		
gF3	lbf·s²/in→kg (kg ←)	Function (monadic, linked)	lbf·s²/in to kg	Convert lbf·s²/in (slinch or blob) to kilogram ; this is the same conversion as slinch→kg on [Mass:.1] gF3 ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
gF4	kg→lbf·s²/in (→ lbf·s²/in)	Function (monadic, linked)	kg to lbf·s²/in	Convert kilogram to lbf·s²/in (slinch or blob) ; this is the same conversion as kg→slinch on [Mass:.1] gF4 ; TI : lbf·s²/in: ; Info : single = bf·s²/in←	*Mass conversions*	$CONV_{HP}$		
gF5	lbf·s²/in→kg (kg ←)	Function (monadic, linked)	lbf·s²/in to kg	Convert lbf·s²/in (slinch or blob) to kilogram ; this is the same conversion as slinch→kg on [Mass:.1] gF3 ; TI : kg:	*Mass conversions*	$CONV_{HP}$		
gF6	kg→lbf·s²/in (→ lbf·s²/in)	Function (monadic, linked)	kg to lbf·s²/in	Convert kilogram to lbf·s²/in (slinch or blob) ; this is the same conversion as kg→slinch on [Mass:.1] gF4 ; TI : lbf·s²/in: ; Info : single = bf·s²/in←	*Mass conversions*	$CONV_{HP}$		

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MatPrp:	Material properties conversions					
g-shift	Struct:	MatPrp:	blob/in^3 ←	→ lbs/in^3	blob/in^3 ←	→ kg/m^3
f-shift	MPa ←	→ ksi	t/mm^3 ←	→ lbs/in^3	t/mm^3 ←	→ kg/m^3
unshifted	Pa ←	→ psi	kg/m^3 ←	→ lbs/in^3	·m	·k
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MatPrp:	MENU	Material properties conversions	Convert between units of material properties ; typical material properties given in material data sheets references ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		MatPrp:	
F1	psi→Pa (Pa ←)	Function (monadic, linked)	psi to Pa	Convert pound force per square inch to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
F2	Pa→psi (→ psi)	Function (monadic, linked)	Pa to psi	Convert Pascal to pound force per square inch ; TI : psi:	*Pressure conversions*	$CONV_{HP}$		
F3	lbs/in^3→kg/m^3 (kg/m^3 ←)	Function (monadic, linked)	lbs/in^3 to kg/m^3	Convert pound per cubic inch to kilogram per cubic metre ; TI : kg/m^3:	*Density conversions*	$CONV_{HP}$		
F4	kg/m^3→lbs/in^3 (→ lbs/in^3)	Function (monadic, linked)	kg/m^3 to lbs/in^3	Convert kilogram per cubic metre to pound per cubic inch ; TI : lbs/in^3:	*Density conversions*	$CONV_{HP}$		
F5	·m	Command (nonpgm)	milli	Factor 10^{-3}	*Numeric input*			
F6	·k	Command (nonpgm)	kilo	Factor 10^3	*Numeric input*			
fF1	ksi→MPa (MPa ←)	Function (monadic, linked)	ksi to MPa	Convert kilo-pound force per square inch to MegaPascal ; TI : MPa:	*Pressure conversions*	$CONV_{HP}$		
fF2	MPa→ksi (→ ksi)	Function (monadic, linked)	MPa to ksi	Convert MegaPascal to kilo-pound force per square inch ; TI : ksi:	*Pressure conversions*	$CONV_{HP}$		
fF3	lbs/in^3→t/mm^3 (t/mm^3 ←)	Function (monadic, linked)	lbs/in^3 to t/mm^3	Convert pound per cubic inch to metric tonne per cubic millimetre ; TI : t/mm^3:	*Density conversions*	$CONV_{HP}$		
fF4	t/mm^3→lbs/in^3 (→ lbs/in^3)	Function (monadic, linked)	t/mm^3 to lbs/in^3	Convert metric tonne per cubic millimetre to pound per cubic inch ; TI : lbs/in^3:	*Density conversions*	$CONV_{HP}$		
fF5	kg/m^3→t/mm^3 (t/mm^3 ←)	Function (monadic, linked)	kg/m^3 to t/mm^3	Convert kilogram per cubic metre to metric tonne per cubic millimetre ; TI : t/mm^3:	*Density conversions*	$CONV_{HP}$		
fF6	t/mm^3→kg/m^3 (→ kg/m^3)	Function (monadic, linked)	t/mm^3 to kg/m^3	Convert metric tonne per cubic millimetre to kilogram per cubic metre ; TI : kg/m^3:	*Density conversions*	$CONV_{HP}$		
gF1	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*	$CONV_{HP}$	Struct:	
gF2	MatPrp:	MENU	Material properties conversions	Convert between units of material properties ; typical material properties given in material data sheets references ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		MatPrp:	
gF3	lbs/in^3→$blob/in^3$ ($blob/in^3$ ←)	Function (monadic, linked)	lbs/in^3 to $blob/in^3$	Convert pound per cubic inch to blob per cubic inch ; TI : $blob/in^3$: ; Info : single = lob/in^3←	*Density conversions*	$CONV_{HP}$		
gF4	$blob/in^3$→lbs/in^3 (→ lbs/in^3)	Function (monadic, linked)	$blob/in^3$ to lbs/in^3	Convert blob per cubic inch to pound per cubic inch ; TI : lbs/in^3:	*Density conversions*	$CONV_{HP}$		
gF5	kg/m^3→$blob/in^3$ ($blob/in^3$ ←)	Function (monadic, linked)	kg/m^3 to $blob/in^3$	Convert kilogram per cubic metre to blob per cubic inch ; TI : $blob/in^3$: ; Info : single = lob/in^3←	*Density conversions*	$CONV_{HP}$		
gF6	$blob/in^3$→kg/m^3 (→ kg/m^3)	Function (monadic, linked)	$blob/in^3$ to kg/m^3	Convert blob per cubic inch to kilogram per cubic metre ; TI : kg/m^3:	*Density conversions*	$CONV_{HP}$		

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p1	MatPrp:	Link
F1	psi→Pa (Pa ←)	
F2	Pa→psi (→ psi)	
F3	lbs/in^3→kg/m^3 (kg/m^3 ←)	
F4	kg/m^3→lbs/in^3 (→ lbs/in^3)	
F5	·m	
F6	·k	
fF1	ksi→MPa (MPa ←)	
fF2	MPa→ksi (→ ksi)	
fF3	lbs/in^3→t/mm^3 (t/mm^3 ←)	
fF4	t/mm^3→lbs/in^3 (→ lbs/in^3)	
fF5	kg/m^3→t/mm^3 (t/mm^3 ←)	
fF6	t/mm^3→kg/m^3 (→ kg/m^3)	
gF1	Struct:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Struct_page_1.pdf
gF2	MatPrp:	https://47calc.com/doc/R47/Menus/R47v0_Menu_MatPrp_page_1.pdf
gF3	lbs/in^3→blob/in^3 (blob/in^3 ←)	
gF4	blob/in^3→lbs/in^3 (→ lbs/in^3)	
gF5	kg/m^3→blob/in^3 (blob/in^3 ←)	
gF6	blob/in^3→kg/m^3 (→ kg/m^3)	

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MATRS	Real matrix or vector variables					
g-shift						
f-shift						
unshifted	HISTO	Mat_A	Mat_B	Mat_X	STATS	
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MATX_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MATRS	MENU	Real matrix or vector variables	Auto-generated catalog of variables of the specified datatype : Real matrix or vector (6) or Complex matrix or vector (7.n) ; Info : Matrix variables STATS and HISTO are also included in this menu, if created	*Catalog*		MATRS	
F1	HISTO	Variable (matrix)	Histogram matrix	Reserved Matrix variable (cannot be deleted) for the histogram matrix (HISTO) ; created from STATS using menu HIST ; not created after RESET	*Plotting and statistics*		HISTO	
F2	Mat_A	Variable (matrix)	Matrix A	Reserved Matrix variable for the Matrix A (Mat A) ; enter equation coefficient matrix using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_A	
F3	Mat_B	Variable (matrix)	Matrix B	Reserved Matrix variable for the Matrix B (Mat B) ; enter equation result vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_B	
F4	Mat_X	Variable (matrix)	Matrix X	Reserved Matrix variable for the Matrix X (Mat X) ; calculate equation solution vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_X	
F5	STATS	Variable (matrix)	Statistics matrix	Reserved Matrix variable (cannot be deleted) for the statistics matrix (STATS) ; created from data entered using Σ+ ; not created after RESET ; TI : Re-calculating sums ... ; may be shown when storing or loading the statistics matrix	*Plotting and statistics*		STATS	
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MATX	Matrix					
g-shift	R_{nn}→V	V→R_{nn}	STOVEL	RCLVEL		
f-shift	IDENT	DIM	DIMgr	DIMN#	~~CNCATB~~	~~CNCATR~~
unshifted	NEW	$[M]^T$	EDIT	EDITN	SIM EQ	VECTOR
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MATX_page_2.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MATX	MENU	Matrix	Matrix functions ; a matrix is displayed in X and shown in other stack registers as [m×n Matrix] or [m×n ℂ Matrix] when containing complex element(s) ; Ref : https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf ; Info : monadic functions work per matrix element (except 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead) ; in edit mode, all functions work per element ; use registers to input calculation results	*Matrix operations*		MATX	
F1	NEW	Command (submnu)	New matrix	Create new matrix with Y rows and X columns	*Matrix operations*		M.NEW	
F2	$[M]^T$	Function (monadic)	Transpose matrix	Transpose matrix in X	*Matrix operations*		$[M]^T$	
F3	EDIT	MENU (item, nonpgm)	Edit matrix	Open matrix editor for matrix in X ; Info : CAT.MENUS M_EDIT ; MIM = Matrix Input Mode ; [↑] or [↓] to move up or down one position ; Ref : 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead	*Matrix operations*		M.EDIT	
F4	EDITN	MENU (item, nonpgm)	Edit matrix (named)	Open matrix editor for matrix in register or variable ; TAM : M.EDITN __ Tam menu	*Matrix operations*		M.EDITN	
F5	SIM EQ	MENU (item)	Matrix simultaneous equations	Matrix simultaneous equations : Mat A · Mat X = Mat B, where Mat A is the equation coefficient matrix and Mat B is the equation result vector ; Mat X is the equation solution vector ; TAM : SIM_EQ __ TamNonReg menu to enter number of equations ; Info : CAT.MENUS M_SIMQ	*Matrix operations*		SIM_EQ	
F6	VECTOR	MENU	Vector menu	Vector functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		VECTOR	
fF1	IDENT	Command	New identity matrix	Create new identity matrix with Y rows and X columns	*Matrix operations*		M.IDENT	
fF2	DIM	Function (monadic)	Dimension (flow)	Set dimension of matrix (named register or variable) to Y rows and X columns ; reflows elements by row and cuts off excess elements or pads with zero elements ; creates a new matrix if necessary ; TAM : M.DIM __ Tam menu ; Info : also see function DIMgr	*Matrix operations*		M.DIM	
fF3	DIMgr	Function (monadic)	Dimension (grow)	Set dimension of matrix (named register or variable) to Y rows and X columns ; cuts off rows and columns or pads with zero element rows and columns ; creates a new matrix if necessary ; TAM : M.DIMgr __ Tam menu ; Info : also see function DIM	*Matrix operations*		M.DIMgr	
fF4	DIMN#	Command	Matrix dimension? (named)	Get dimensions of matrix in register or variable ; TAM : M.DIMN# __ Tam menu	*Matrix operations*		M.DIMN#	
fF5	~~CNCATB~~	Command (strike)	Concatenate (bottom)	Concatenate matrices (bottom) ; TAM : M.CNCTB __ Tam menu	*Matrix operations*		~~M.CNCTB~~	
fF6	~~CNCATR~~	Command (strike)	Concatenate (right)	Concatenate matrices (right) ; TAM : M.CNCTR __ Tam menu	*Matrix operations*		~~M.CNCTR~~	
gF1	R_{nn}→V	Command	Fill matrix from registers	Fill matrix or vector in X from ascending range of registers starting with register nn (TAM), where numbers of registers depends on size of matrix or vector ; TAM : R_{nn}→V __ TamIndirect menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Matrix operations*	3Dxyz	R_{nn}→V	
gF2	V→R_{nn}	Command	Copy elements to registers	Copy elements of matrix or vector in X to ascending range of registers, starting with register nn (TAM), where numbers of registers depends on size of matrix or vector ; TAM : V→R_{nn} __ TamIndirect menu ; be careful when using the range of stack registers (100-107) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Matrix operations*	3Dxyz	V→R_{nn}	
gF3	STOVEL	Command	Store X into vector element	Store X into element n (TAM) of vector or matrix in Y ; Shortcut : [STO] - ...VEL_{nn} ; TAM : STOVEL ___ Tam menu	*Matrix operations*		STOVEL	
gF4	RCLVEL	Command	Recall vector element	Recall element n (TAM) of vector or matrix in X ; Shortcut : [RCL] - ...VEL_{nn} ; TAM : RCLVEL ___ Tam menu	*Matrix operations*		RCLVEL	
gF5								

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF6								

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p1	MATX	Link
F1	NEW	
F2	$[M]^T$	
F3	EDIT	https://47calc.com/doc/R47/Menus/R47v0_Menu_EDIT_MATX_page_1.pdf
F4	EDITN	https://47calc.com/doc/R47/Menus/R47v0_Menu_EDITN_page_1.pdf
F5	SIM EQ	https://47calc.com/doc/R47/Menus/R47v0_Menu_SIM_EQ_page_1.pdf
F6	VECTOR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VECTOR_page_1.pdf
fF1	IDENT	
fF2	DIM	
fF3	DIMgr	
fF4	DIMN#	
fF5	~~CNCATB~~	
fF6	~~CNCATR~~	
gF1	R_{nn}→V	
gF2	V→R_{nn}	
gF3	STOVEL	
gF4	RCLVEL	
gF5		
gF6		

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MATX	Matrix					
g-shift			EIGVEC	EIGVAL	M.LU	M.QR
f-shift	$\|\|x\|\|_p$	UNITV	$[M]^T$	$\measuredangle\bar{x},\bar{y}$	dot	cross
unshifted	$[M]^{-1}$	MSQRT	RSUM	CSUM	$\|M\|$	VECTOR
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	MATX	MENU	Matrix	Matrix functions ; a matrix is displayed in X and shown in other stack registers as [m×n Matrix] or [m×n ℂ Matrix] when containing complex element(s) ; Ref : https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf ; Info : monadic functions work per matrix element (except 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead) ; in edit mode, all functions work per element ; use registers to input calculation results	*Matrix operations*		MATX	
F1	$[M]^{-1}$	Function (monadic)	Invert matrix	Invert matrix in X (exists only when $\lvert M\rvert \neq 0$) ; Shortcut : [$^1/x$] ; Info : Error 22 -- Singular matrix -- is raised when $\lvert M\rvert = 0$	*Matrix operations*		$[M]^{-1}$	
F2	MSQRT	Function (monadic)	Square root of matrix	Square root of matrix in X : if M = MSQRT(X), M × M = X, where × denotes matrix multiplication ; Shortcut : [$\sqrt{x}$] ; Info : Error 20 -- No root found or Error 21 -- Matrix mismatch may be raised (the latter when the matrix is not square)	*Matrix operations*		M.SQRT	
F3	RSUM	Command	Row sum	Row sum of vector or matrix in X : RSUM = $\Sigma_j a_{ij}$	*Matrix operations*		RSUM	
F4	CSUM	Command	Column sum	Column sum of vector or matrix in X : CSUM = $\Sigma_i a_{ij}$	*Matrix operations*		CSUM	
F5	$\lvert M\rvert$	Function (monadic)	Determinant	Determinant of matrix in X (matrix must be square)	*Matrix operations*		$\lvert M\rvert$	
F6	VECTOR	MENU	Vector menu	Vector functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		VECTOR	
fF1	$\lVert x\rVert_p$	Function (monadic)	Norm	Norm of vector or matrix in X with parameter p (trailing input) = 0, 1, 2, ..., 9, ∞ : 0 : Number of non-zeros of vector or matrix in X : $\lVert x\rVert_0 = \Sigma_i\Sigma_j \mathbb{I}(a_{ij}\neq 0)$, where $\mathbb{I}$ is the indicator function, 1 if true, 0 if false ; 1 : Maximum column sum of absolute element values of a matrix in X : $\lVert x\rVert_1 = \max_j\Sigma_i\lvert a_{ij}\rvert$; 2 : Euclidean magnitude of a vector in X or Frobenius norm of a matrix in X : $\lVert x\rVert_2 = \sqrt{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^2}$; 3 : $\lVert x\rVert_3 = \sqrt[3]{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^3}$; ... ; 9 : $\lVert x\rVert_9 = \sqrt[9]{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^9}$; ∞ : Maximum row sum of absolute element values of a matrix in X : $\lVert x\rVert_\infty = \max_i\Sigma_j\lvert a_{ij}\rvert$; TAM : $\lVert x\rVert_p$ _ TamNorm menu ; Info : parameter 0, 1, 2, ..., 9, ∞ (use [TamNorm.1] F2 to enter ∞)	*Matrix operations*		$\lVert x\rVert_p$	
fF2	UNITV	Command	Unit vector or matrix	Unit vector or matrix for ℝeal or ℂomplex matrix or vector ; the result will have Euclidean magnitude 1 ; Info : UNITV also applies to ℂomplex numbers	*Complex numbers*		UNITV	
fF3	$[M]^T$	Function (monadic)	Transpose matrix	Transpose matrix in X	*Matrix operations*		$[M]^T$	
fF4	$\measuredangle\bar{x},\bar{y}$	Function (dyadic)	Vector angle	Angle between the 2D or 3D vectors in X and Y	*Matrix operations*	3Dxyz	$\measuredangle\bar{x},\bar{y}$	
fF5	dot	Function (dyadic)	Dot product (·)	Dot product of vectors in X and Y	*Complex numbers*		DOT	
fF6	cross	Function (dyadic)	Cross product (×)	Cross product of vectors in X and Y	*Complex numbers*		CROSS	
gF1								
gF2								
gF3	EIGVEC	Function (monadic)	Eigenvector	Eigenvector of matrix in X ; tolerance set by SDIGS (use value of 10-16 for better performance or higher for better accuracy) ; Info : Displays : i/m Tol: current/target Iter: n, where i/m is count of eigenvalues, n is iteration counter ; shown if flag MONIT is SET ; for new models and simulator, extended internal eigenvalue precision with 159-digit type integration was added, achieving 39-digit accuracy for 2x2 and 3x3 solvers, but this is not applicable to DM42 hardware	*Matrix operations*	MONIT	EIGVEC	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF4	EIGVAL	Function (monadic)	Eigenvalues	Eigenvalues as a 1xn vector (returned in X) and as the diagonal elements of an nxn matrix (returned in Y) ; tolerance set by SDIGS (use value of 10-16 for better performance or higher for better accuracy) ; Info : Displays : i/m Tol: current/target Iter: n, where i/m is count of eigenvalues, n is iteration counter ; shown if flag MONIT is SET ; for new models and simulator, extended internal eigenvalue precision with 159-digit type integration was added, achieving 39-digit accuracy for 2x2 and 3x3 solvers, but this is not applicable to DM42 hardware	*Matrix operations*	MONIT	EIGVAL	
gF5	M.LU	Function (monadic)	LU decomposition	Decompose matrix in X into lower (L) in Y and upper (U or R) matrix in X ; pivot matrix in Z ; Info : LU (LR) factorisation, underlies inversion and linear solving	*Matrix operations*		M.LU	
gF6	M.QR	Function (monadic)	QR decomposition	Decompose matrix in X into unitary (Q) in Y and upper (R) matrix in X ; Info : QR factorisation, underlies eigenvalue computation	*Matrix operations*		M.QR	

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p2	MATX	Link
F1	$[M]^{-1}$	
F2	MSQRT	
F3	RSUM	
F4	CSUM	
F5	|M|	
F6	VECTOR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VECTOR_page_1.pdf
fF1	$\|\|x\|\|_p$	
fF2	UNITV	
fF3	$[M]^T$	
fF4	$\measuredangle\bar{x},\bar{y}$	
fF5	dot	
fF6	cross	
gF1		
gF2		
gF3	EIGVEC	
gF4	EIGVAL	
gF5	M.LU	
gF6	M.QR	

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MATX	Matrix					
g-shift	PUTM	GETM	STOEL	RCLEL	STOSEQ	RCLSEQ
f-shift	CMIN	CMAX	R⇄R	C⇄C	FIND	INDEX
unshifted	I+row	I-row	STOIJ	RCLIJ	J-col	J+col
Page 3	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MENU_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	MATX	MENU	Matrix	Matrix functions ; a matrix is displayed in X and shown in other stack registers as [m×n Matrix] or [m×n ℂ Matrix] when containing complex element(s) ; Ref : https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf ; Info : monadic functions work per matrix element (except 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead) ; in edit mode, all functions work per element ; use registers to input calculation results	*Matrix operations*		MATX	
F1	$I+_{row}$	Command	Increment row index	Increment row index I of indexed matrix ; wraps automatically ; does not put value on the stack ; menu button I+ on [MATX.3] F1 displays value as subscript (only if indexed matrix exists) ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]	*Matrix operations*		I+	<row>
F2	$I-_{row}$	Command	Decrement row index	Decrement row index I of indexed matrix ; wraps automatically ; does not put value on the stack ; menu button I- on [MATX.3] F2 displays value as subscript (only if indexed matrix exists) ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]	*Matrix operations*		I-	<row>
F3	STOIJ	Command	Set current matrix index	Set current matrix index (row I and column J) ; Shortcut : [STO] - ...IJ ; TI : M<name> $:I_r=$; M<name> $:J_c=$	*Matrix operations*		STOIJ	
F4	RCLIJ	Command	Recall current matrix index	Recall current matrix index (row I and column J) ; Shortcut : [RCL] - ...IJ ; TI : M<name> $:I_r=$; M<name> $:J_c=$	*Matrix operations*		RCLIJ	
F5	$J-_{col}$	Command	Decrement column index	Decrement column index J of indexed matrix ; wraps automatically ; does not put value on the stack ; menu button J- on [MATX.3] F5 displays value as subscript (only if indexed matrix exists) ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]	*Matrix operations*		J-	<col>
F6	$J+_{col}$	Command	Increment column index	Increment column index J of indexed matrix ; wraps automatically ; does not put value on the stack ; menu button J+ on [MATX.3] F6 displays value as subscript (only if indexed matrix exists) ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]	*Matrix operations*		J+	<col>
fF1	CMIN	Function (monadic)	Minimum column value	Minimum column value for column (J) of indexed matrix, returns row index (I) in Y and minimum in X ; Info : Set starting row and column index using STOIJ before executing CMIN	*Matrix operations*		M.CMIN	
fF2	CMAX	Function (monadic)	Maximum column value	Maximum column value for column (J) of indexed matrix, returns row index (I) in Y and maximum in X ; Info : Set starting row and column index using STOIJ before executing CMAX	*Matrix operations*		M.CMAX	
fF3	R⇄R	Command	Swap rows	Swap rows X and Y of indexed matrix	*Matrix operations*		M.R⇄R	
fF4	C⇄C	Command	Swap columns	Swap columns X and Y of indexed matrix	*Matrix operations*		M.C⇄C	
fF5	FIND	Function (monadic)	Find element	Find element X of indexed matrix, setting row index I and column indexes if found (unchanged otherwise) ; Info : If used in a program, the next step after M.FIND is performed if the element is found, otherwise it is skipped	*Matrix operations*		M.FIND	
fF6	INDEX	Command	Index matrix	Index matrix in a register or variable ; set row I to 1, column J to 1 ; clear flags WRPEDG and WRPEND ; index wraps automatically, setting these flags ; index is dropped upon exit of matrix editor ; TAM : INDEX __ Tam menu ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]	*Matrix operations*		INDEX	
gF1	PUTM	Command	Put submatrix	Put submatrix in X into the indexed matrix starting at current element	*Matrix operations*		M.PUTM	
gF2	GETM	Command	Get submatrix	Get submatrix with Y rows and X columns from the indexed matrix starting at current element	*Matrix operations*		M.GETM	
gF3	STOEL	Command	Store X into matrix element	Store X into current element of indexed matrix ; Shortcut : [STO] - Config ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]=	*Matrix operations*		STOEL	
gF4	RCLEL	Command	Recall matrix element	Recall current element of indexed matrix ; Shortcut : [RCL] - ...EL ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]=	*Matrix operations*		RCLEL	
gF5	STOSEQ	Command	Store X into matrix element and go to next	Store X into current element of indexed matrix, then increment column index J of indexed matrix ; wraps automatically ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]=	*Matrix operations*		STOSEQ	
gF6	RCLSEQ	Command	Recall matrix element and go to next	Recall current element of indexed matrix, then increment column index J of indexed matrix ; wraps automatically ; TI : $M[I_r\ J_c]$=<name> [<row> <col>]=	*Matrix operations*		RCLSEQ	

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MENU (MENUS)	Menu					
g-shift						
f-shift						
unshifted						
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MENUS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MENU (MENUS)	MENU (ASM)	Menu	Presented in menu TamMenu for commands accessing menus ; Info : Type characters 1-2 to search	*Trailing input*		MENU	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MENUS	Menus					
g-shift						
f-shift						
unshifted						
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Misc_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_CAT-MENUS.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MENUS	MENU (ASM)	Menus	Catalog of all menus (including user defined menus) ; Info : Type characters 1-2 to search ; Ref : https://47calc.com/doc/R47/Reference/R47v0_CAT-MENUS.pdf	*Catalog*		MENUS	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Misc:	Miscellaneous conversions					
g-shift						
f-shift	s ←	→ year			dB ←	→ pwr
unshifted	HR ←	→ HMS	ft·lbf ←	→ N·m	dB ←	→ fld
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MENUS_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MLoads_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Misc:	MENU	Miscellaneous conversions	Time, torque, power and field ratio conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		Misc:	
F1	HMS→HR (HR ←)	Function (monadic, linked)	HMS to HR	Convert sexagesimal format hours to decimal hours ; TI : decimal h: ; Ref : https://47calc.com/doc/Application%20Notes/AN0014_C47_JM_dms_hms_and_ms.pdf	*Fixed pair conversions*	$CONV_{HP}$		
F2	HR→HMS (→ HMS)	Function (monadic, linked)	HR to HMS	Convert decimal hours to sexagesimal format hours ; TI : hh.mmss: ; Ref : https://47calc.com/doc/Application%20Notes/AN0014_C47_JM_dms_hms_and_ms.pdf	*Fixed pair conversions*	$CONV_{HP}$		
F3	N·m→ft·lbf (ft·lbf ←)	Function (monadic, linked)	N·m to ft·lbf	Convert Newton-metre to foot-pound force ; TI : ft·lbf:	*Torque/moment conversions*	$CONV_{HP}$		
F4	ft·lbf→N·m (→ N·m)	Function (monadic, linked)	ft·lbf to N·m	Convert foot-pound force to Newton-metre ; TI : N·m:	*Torque/moment conversions*	$CONV_{HP}$		
F5	fld→dB (dB ←)	Function (monadic, linked)	fld to dB	Convert field ratio to decibel ; TI : dB:	*Fixed pair conversions*	$CONV_{HP}$		
F6	dB→fld (→ fld)	Function (monadic, linked)	dB to fld	Convert decibel to field ratio ; TI : fld:	*Fixed pair conversions*	$CONV_{HP}$		
fF1	year→s (s ←)	Function (monadic, linked)	year to s	Convert year to second ; TI : s:	*Time conversions*	$CONV_{HP}$		
fF2	s→year (→ year)	Function (monadic, linked)	s to year	Convert second to year ; TI : year:	*Time conversions*	$CONV_{HP}$		
fF3								
fF4								
fF5	pwr→dB (dB ←)	Function (monadic, linked)	pwr to dB	Convert power ratio to decibel ; TI : dB:	*Fixed pair conversions*	$CONV_{HP}$		
fF6	dB→pwr (→ pwr)	Function (monadic, linked)	dB to pwr	Convert decibel to power ratio ; TI : pwr:	*Fixed pair conversions*	$CONV_{HP}$		
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MLoads:	Moment loads conversions					
g-shift	Struct:	MLoads:	FIX 0	SCI 0	ENG 0	UNIT 0
f-shift						
unshifted	N·m ←	→ ft·lbf	N·m ←	→ in·lbf	·m	·k
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MODE_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MLoads:	MENU	Moment loads conversions	Convert between units of moment loads ; typical moment loads units (torque) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Torque/moment conversions*		MLoads:	
F1	ft·lbf→N·m (N·m ←)	Function (monadic, linked)	ft·lbf to N·m	Convert foot-pound force to Newton-metre ; TI : N·m:	*Torque/moment conversions*	$CONV_{HP}$		
F2	N·m→ft·lbf (→ ft·lbf)	Function (monadic, linked)	N·m to ft·lbf	Convert Newton-metre to foot-pound force ; TI : ft·lbf:	*Torque/moment conversions*	$CONV_{HP}$		
F3	in·lbf→N·m (N·m ←)	Function (monadic, linked)	in·lbf to N·m	Convert inch-pound force to Newton-metre ; TI : N·m:	*Torque/moment conversions*	$CONV_{HP}$		
F4	N·m→in·lbf (→ in·lbf)	Function (monadic, linked)	N·m to in·lbf	Convert Newton-metre to inch-pound force ; TI : in·lbf:	*Torque/moment conversions*	$CONV_{HP}$		
F5	·m	Command (nonpgm)	milli	Factor 10^{-3}	*Numeric input*			
F6	·k	Command (nonpgm)	kilo	Factor 10^{3}	*Numeric input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*	$CONV_{HP}$	Struct:	
gF2	MLoads:	MENU	Moment loads conversions	Convert between units of moment loads ; typical moment loads units (torque) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Torque/moment conversions*		MLoads:	
gF3	FIX 0	Setting (pgm)	FIXed notation	Set numeric display mode to fixed notation with nn decimals (NDEC = nn = 0-19 ; DF = 1) ; TAM : FIX __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		FIX 0	OFF
gF4	SCI 0	Setting (pgm)	SCIentific notation	Set numeric display mode to scientific notation with nn decimals = nn+1 digits (NDEC = nn = 0-19 ; DF = 2) ; TAM : SCI __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		SCI 0	OFF
gF5	ENG 0	Setting (pgm)	ENGineering notation	Set numeric display mode to engineering notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 3) ; TAM : ENG __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		ENG 0	OFF
gF6	UNIT 0	Setting (pgm)	Unit (prefix) notation	Set numeric display mode to unit (prefix) notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 5) ; showing all or limited set of SI-prefixes depending on flag PFX.All ; if flag 1024^n is SET, binary prefixes are shown if available and long integer values are indicated by Z: ; prefixes can be selected directly from menu Prefix ; TAM : UNIT __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*	1024^n	UNIT 0	OFF

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p1	MLoads:	Link
F1	ft·lbf→N·m (N·m ←)	
F2	N·m→ft·lbf (→ ft·lbf)	
F3	in·lbf→N·m (N·m ←)	
F4	N·m→in·lbf (→ in·lbf)	
F5	·m	
F6	·k	
f F1		
f F2		
f F3		
f F4		
f F5		
f F6		
g F1	Struct:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Struct_page_1.pdf
g F2	MLoads:	https://47calc.com/doc/R47/Menus/R47v0_Menu_MLoads_page_1.pdf
g F3	FIX 0	
g F4	SCI 0	
g F5	ENG 0	
g F6	UNIT 0	

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MODE	Mode settings					
g-shift						
f-shift	DMCP	ActUSB		eRPN ⊡	RP_{HP} ⊡	CFLG
unshifted	DEG ⊙	RAD ○	GRAD ○	$SDIGS_{34}$	RECT ⊙	POLAR ○
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MODE_page_2.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MODE	MENU	Mode settings	System (mode settings) settings ; replaced by PREF in this layout ; Info : C47 menu MODE is replaced by PREF ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*System*		MODE	
F1	DEG ⊙	Setting (pgm)	Set ADM to DEG	Set Angular Display Mode to degrees mode (ADM = 0) ; Info : SBI ° is shown if flag SBadm is SET ; SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : °	*Angle tagging or conversion*	SBadm	DEG ⊙	ON
F2	RAD ○	Setting (pgm)	Set ADM to RAD	Set Angular Display Mode to radians mode (ADM = 2) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ʳ	*Angle tagging or conversion*	SBang	RAD ○	OFF
F3	GRAD ○	Setting (pgm)	Set ADM to GRAD	Set Angular Display Mode to gradians mode (ADM = 4) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ᵍ	*Angle tagging or conversion*	SBang	GRAD ○	OFF
F4	SDIGS$_{34}$	Setting (pgm)	Set significant digits	Set the number of significant digits (1-34) for rounding after each operation ; sets tolerance of solvers, plotting and CONVG? ; value of 0 sets maximum precision (34) ; TAM : SDIGS __ TamNonReg menu ; Info : when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Mathematics*		SDIGS$_{34}$	34
F5	RECT ⊙	Setting (pgm)	Rectangular notation	Switch on rectangular notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ∟	*Complex and coordinates*	POLAR	RECT ⊙	ON
F6	POLAR ○	Setting (pgm)	Polar notation	Switch on polar notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊙	*Complex and coordinates*	POLAR	POLAR ○	OFF
fF1	DMCP	Command (HW)	Access DMCP menu	Access DMCP menu ; hardware only ; use EXIT to return without RESET -- see https://technical.swissmicros.com/dm42/doc/dm42_user_manual.html#dmcp_sys_menu ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMCP_menu.pdf	*System*		DMCP	
fF2	ActUSB	Command (HW)	Activate USB disk	Activate USB disk without exiting to DMCP ; hardware only ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*System*		ActUSB	
fF3								
fF4	eRPN ▣	Setting	Entry RPN mode	Switch on interactive Entry RPN mode ; not programmable - in PEM, use flag eRPN ; Info : If eRPN is ON, in Numeric Input Mode, ENTER pushes the input value onto the stack, and if OFF, then it also duplicates X to Y ; without input or in Program Entry Mode, ENTER always duplicates X to Y ; only if eRPN is OFF, automatic stack lift is disabled after ENTER ; stack size SBI (8 or 4) is displayed in normal font if eRPN is ON and inverted if OFF ; SBI 8 or 4 is shown if flag SBss is ON ; SBI : 8 or 4	*Stack*	eRPN	eRPN ▣	ON
fF5	RP$_{HP}$ ▣	Setting	Classic (HP) Rect/Polar	Switch on x : Re ; y : Im (RECT) ; r ; θ (POLAR) in X, Y ; not programmable - in PEM, use flag RP$_{HP}$; Info : RP$_{HP}$ OFF conforms to the way the R47v0 deals with complex numbers	*Complex and coordinates*	RP$_{HP}$	RP$_{HP}$ ▣	ON
fF6	CFLG	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	MODE	Link
F1	DEG ⊙	
F2	RAD ○	
F3	GRAD ○	
F4	SDIGS34	
F5	RECT ⊙	
F6	POLAR ○	
fF1	DMCP	
fF2	ActUSB	
fF3		
fF4	eRPN ⊡	
fF5	RPHP ⊡	
fF6	CFLG	https://47calc.com/doc/R47/Menus/R47v0_Menu_CFLG_page_1.pdf
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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MODE	Mode settings					
g-shift						
f-shift	i LI/R ⊙	i R ○	i C ○	i LI ○	RMODE$_0$	CFLG
unshifted	SSIZE4 ○	SSIZE8 ⊙	CPXRES ⊡	SPCRES ⊡	RECT ⊙	POLAR ○
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MODE_page_3.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	MODE	MENU	Mode settings	System (mode settings) settings ; replaced by PREF in this layout ; Info : C47 menu MODE is replaced by PREF ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*System*		MODE	
F1	SSIZE4 ○	Setting (pgm)	Stack size 4	Switch on 4 register stack ; Info : SBI 8 ; 4 is shown if flag SBss is SET ; SBI : 4	*Stack*	SSIZE8	SSIZE4 ○	OFF
F2	SSIZE8 ◉	Setting (pgm)	Stack Size 8	Switch on 8 register stack ; Info : SBI 8 ; 4 is shown if flag SBss is SET ; SBI : 8	*Stack*	SSIZE8	SSIZE8 ◉	ON
F3	CPXRES ▣	Setting	Complex results	Switch on Complex results ; not programmable - in PEM, use flag CPXRES ; Info : CPXRES is auto-set when entering complex input ; SBI ℂ ; ℝ is shown if flag SBcr is SET ; SBI : ℂ ; ℝ	*Complex numbers*	CPXRES	CPXRES ▣	ON
F4	SPCRES ▣	Setting	Special results	Switch on special results ; not programmable - in PEM, use flag SPCRES ; Info : Special results are: infinity (±∞) and not-a-number (NaN), an error will not occur for such values when SPCRES is SET ; also, ±0. may be used	*Mathematics*	SPCRES	SPCRES ▣	ON
F5	RECT ⊙	Setting (pgm)	Rectangular notation	Switch on rectangular notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ∟	*Complex and coordinates*	POLAR	RECT ⊙	ON
F6	POLAR ○	Setting (pgm)	Polar notation	Switch on polar notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ⊙	*Complex and coordinates*	POLAR	POLAR ○	OFF
fF1	iLI/R ⊙	Setting (pgm)	Input Long integer/Real number	New numeric input is put on the stack as Long integer (0) or Real number (1.0-1.5) ; Info : Uses the decimal radix (default ".") to determine the numeric datatype	*Numeric input*		iLI/R ⊙	ON
fF2	iR ○	Setting (pgm)	input Real number	New numeric input is put on the stack as Real number (1.0-1.5)	*Numeric input*		iR ○	OFF
fF3	iℂ ○	Setting (pgm)	Input Complex number	New numeric input is put on the stack as Complex number (2.0-2.5)	*Numeric input*		iℂ ○	OFF
fF4	iLI ○	Setting (pgm)	input Long integer	New numeric input is put on the stack as Long integer (0) and entry of the decimal radix is ignored ; Info : Switch on dZ.0 for displaying Long integers as Real ; not programmable - in PEM, use flag dZ.0	*Numeric input*		iLI ○	OFF
fF5	$RMODE_0$	Setting (pgm)	Set rounding mode	Set floating point rounding mode ; used for RSD and RDP ; also used when converting from the extended precision internal format to packed reals ; 0 : ½E = round half even ; 1 : ½↑ = round half up ; 2 : ½↓ = round half down ; 3 : ←0→ = round away from zero ; 4 : →0← = round towards zero ; 5 : ⌈x⌉ = ceiling ; 6 : ⌊x⌋ = floor ; TAM : RMODE _ TamNonReg menu ; Info : may be abbreviated as RM in status overviews	*Reals*		$RMODE_0$	0
fF6	CFLG	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p2	MODE	Link
F1	SSIZE4 ○	
F2	SSIZE8 ◎	
F3	CPXRES ⊡	
F4	SPCRES ⊡	
F5	RECT ◎	
F6	POLAR ○	
fF1	iLI/R ◎	
fF2	iR ○	
fF3	iC ○	
fF4	iLI ○	
fF5	RMODE$_0$	
fF6	CFLG	https://47calc.com/doc/R47/Menus/R47v0_Menu_CFLG_page_1.pdf
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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MODE	Mode settings					
g-shift	F.14 ○	F.124 ⊙	F.1234 ○	KEY.LP ⊡	MyM$_f^g$ □	HOME$_f^g$ ⊡
f-shift	M.14 ○	M.124 ○	M.1234 ⊙	MNUp1 ⊡	MyMb ⊡	HOMEb □
unshifted	SRESET	g.2Tp ⊡	SH.4s □	fg.GR □	fg.LIM □	fg.FUL ⊡
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MODEL_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	MODE	MENU	Mode settings	System (mode settings) settings ; replaced by PREF in this layout ; Info : C47 menu MODE is replaced by PREF ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*System*		MODE	
F1	SRESET	Command	Safe reset f/g timers	Safe reset, then toggle ON/OFF the timing related user interface options: fg.FUL ◙, g.2Tp ◙, SH.4s □, HOME$_f^g$ ◙	*User interface*		SRESET	
F2	g.2Tp ◙	Setting	Double tap function keys	Switch on double tap function keys for g-shift ; not programmable - in PEM, use flag g.2Tp ; Info : Blocked for navigation FN-keys (arrows) in editors	*User interface*	g.2Tp	g.2Tp ◙	ON
F3	SH.4s □	Setting	Shift time-out of 4s	Switch on shift time-out of 4s ; not programmable - in PEM, use flag SH.4s ; Info : For layouts containing key [f/g] only	*User interface*	SH.4s	SH.4s □	OFF
F4	fg.GR □	Setting (pgm)	Menu f,g-highlighting Grey	Switch on menu f,g-highlighting grey	*User interface*	fg.GR	fg.GR □	OFF
F5	fg.LIM □	Setting (pgm)	Menu f,g-highlighting Limited	Switch on menu f,g-highlighting limited ; Info : fg.LIM and fg.FUL are linked (both cannot be ON at the same time)	*User interface*	fg.LIM	fg.LIM □	OFF
F6	fg.FUL ◙	Setting (pgm)	Menu f,g-highlighting Full	Switch on menu f,g-highlighting full ; Info : fg.FUL and fg.LIM are linked (both cannot be ON at the same time)	*User interface*	fg.FUL	fg.FUL ◙	ON
fF1	M.14 ○	Setting (pgm)	Math keys skip f- and g-shift	Longpress control : Math keys skip f- and g-shift ; Info : 1. primaryNM : unshifted ; 4. longestpress : NOP ; Math keys are keys in row 2-4 except [<f>], [<g>], [EEX] and [←]	*User interface*			OFF
fF2	M.124 ○	Setting (pgm)	Math keys skip g-shift	Longpress control : Math keys skip g-shift ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 4. longestpress : NOP ; Math keys are keys in row 2-4 except [<f>], [<g>], [EEX] and [←]	*User interface*			OFF
fF3	M.1234 ◎	Setting (pgm)	Math keys do full cycle	Longpress control : Math keys do full cycle ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 3. longerpress : g-shift ; 4. longestpress : NOP ; Math keys are keys in row 2-4 except [<f>], [<g>], [EEX] and [←]	*User interface*			ON
fF4	MNUp1 ◙	Setting (pgm)	Menu opens on p1	Switch on menu opens on p1	*User interface*	MNUp1	MNUp1 ◙	ON
fF5	MyMb ◙	Setting	MyMenu shown	Switch on MyMenu shown ; not programmable - in PEM, use flag MyMb ; Info : MyMb and HOMEb are linked (both cannot be ON at the same time ; applies when all menus are exited using EXIT	*Customisation*	MyMb	MyMb ◙	ON
fF6	HOMEb □	Setting	HOME menu shown	Switch on HOME menu shown ; not programmable - in PEM, use flag HOMEb ; Info : HOMEb and MyMb are linked (both cannot be ON at the same time ; applies when all menus are exited using EXIT	*Customisation*	HOMEb	HOMEb □	OFF
gF1	F.14 ○	Setting (pgm)	Function keys skip f- and g-shift	Longpress control : Function keys skip f- and g-shift ; Info : 1. primaryNM : unshifted ; 4. longestpress : NOP	*User interface*			OFF
gF2	F.124 ◎	Setting (pgm)	Function keys skip g-shift	Longpress control : Function keys skip g-shift ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 4. longestpress : NOP	*User interface*			ON
gF3	F.1234 ○	Setting (pgm)	Function keys do full cycle	Longpress control : Function keys do full cycle ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 3. longerpress : g-shift ; 4. longestpress : NOP	*User interface*			OFF
gF4	KEY.LP ◙	Setting	Longpress f and g shortcuts	Switch on longpress shortcuts for f-shift and g-shift keys ; not programmable - in PEM, use flag KEY.LP ; Info : KEY.LP pertains to R47v0 f g layout and R47v2 $_f^g$ g layout only and also enables longpress assignment to f-shift and g-shift keys	*User interface*	KEY.LP	KEY.LP ◙	ON
gF5	MyM$_f^g$ □	Setting	MyMenu f/g shortcut	Switch on MyMenu activated by triple and longerpress f/g-shift ; not programmable - in PEM, use flag MyM$_f^g$; Info : MyM$_f^g$ and HOME$_f^g$ are linked (both cannot be ON at the same time ; MyM$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	MyM$_f^g$	MyM$_f^g$ □	OFF
gF6	HOME$_f^g$ ◙	Setting	HOME menu f/g shortcut	Switch on HOME menu activated by triple and longerpress f/g-shift ; not programmable - in PEM, use flag HOME$_f^g$; Info : HOME$_f^g$ and MyM$_f^g$ are linked (both cannot be ON at the same time ; HOME$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	HOME$_f^g$	HOME$_f^g$ ◙	ON

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MODEL	Model					
g-shift	ResetF	AllF	BestF$_1$	BestF#		OrthoF ◻
f-shift	RootF ◻	HypF ◻	ParabF ◻	CauchF ◻	GaussF ◻	
unshifted	LinF ◙	ExpF ◻	LogF ◻	PowerF ◻	L.R.	ASSESS
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MULTSTK_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_BestF_param.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MODEL	MENU	Model	Functions to set parameter for which models are selected in the LR analysis ; Ref : https://47calc.com/doc/R47/Reference/R47v0_BestF_param.pdf	*Plotting and curve fitting*		MODEL	
F1	LinF ◙	Setting	Linear fit	Set <BestF> to include Linear curve fitting : y = a_0 + a_1x ; deselects OrthoF ; Info : Adds 1 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		LinF ◙	ON
F2	ExpF ◻	Setting	Exponential fit	Set <BestF> to include Exponential curve fitting : y = a_0 e^(a_1x) ; deselects OrthoF ; Info : Adds 2 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		ExpF ◻	OFF
F3	LogF ◻	Setting	Logarithmic fit	Set <BestF> to include Logarithmic curve fitting : y = a_0 + $a_1$ln(x) ; deselects OrthoF ; Info : Adds 4 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		LogF ◻	OFF
F4	PowerF ◻	Setting	Power fit	Set <BestF> to include Power curve fitting : y = a_0 x^a_1 ; deselects OrthoF ; Info : Adds 8 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		PowerF ◻	OFF
F5	L.R.	Command	Linear Regression	Calculate all selected regression models, and select the one with the best coefficient of fit model correlation (r) ; TI : <model>* a_2 = ; y = a_1 = ; <formula> a_0 =	*Plotting and curve fitting*		L.R.	
F6	ASSESS	MENU (item)	Assess	Display graphical assessments of the selected regression curves	*Plotting and curve fitting*			
fF1	RootF ◻	Setting	Root fit	Set <BestF> to include Root curve fitting : y = a_0 a_1^(1/x) ; deselects OrthoF ; Info : Adds 16 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		RootF ◻	OFF
fF2	HypF ◻	Setting	Hyperbolic fit	Set <BestF> to include Hyperbolic curve fitting : y = $(a_0 + a_1x)^{-1}$; deselects OrthoF ; Info : Adds 32 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		HypF ◻	OFF
fF3	ParabF ◻	Setting	Parabolic fit	Set <BestF> to include Parabolic curve fitting : y = $a_0 + a_1x + a_2x^2$; deselects OrthoF ; Info : Adds 64 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		ParabF ◻	OFF
fF4	CauchF ◻	Setting	Cauchy peak fit	Set <BestF> to include Cauchy peak curve fitting : y = $[a_0 (x + a_1)^2 + a_2]^{-1}$; deselects OrthoF ; Info : Adds 128 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		CauchF ◻	OFF
fF5	GaussF ◻	Setting	Gauss peak fit	Set <BestF> to include Gauss peak curve fitting : y = a_0 e^$[(x - a_1)^2 / a_2]$; deselects OrthoF ; Info : Adds 256 to <BestF> ; TI : L.R. selected to <BestF>.	*Plotting and curve fitting*		GaussF ◻	OFF
fF6								
gF1	ResetF	Command	Reset fitting	Reset <BestF> to default (1) ; TI : L.R. selected to 001	*Plotting and curve fitting*		ResetF	
gF2	AllF	Command	Set all (models)	Set <BestF> to include all curve fitting models (511) ; deselects OrthoF ; TI : L.R. selected to 511	*Plotting and curve fitting*		AllF	
gF3	$BestF_1$	Setting	Set Best Fit	Select curve fit model(s) by setting parameter value directly ; TAM : BestF ___ TamNonReg menu	*Plotting and curve fitting*		$BestF_1$	1
gF4	BestF#	Command	Get Best Fit	Get parameter for which models are selected in the LR analysis ; Info : Set in menu MODEL	*Plotting and curve fitting*		BestF#	
gF5								
gF6	OrthoF ◻	Setting	Orthogonal fit	Select orthogonal curve fitting (used in PLSTAT) ; deselects other curve fit settings ; Info : Sets <BestF> to 0 ; TI : L.R. selected to OrthoF	*Plotting and curve fitting*		OrthoF ◻	OFF

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p1	MODEL	Link
F1	LinF ▣	
F2	ExpF ◻	
F3	LogF ◻	
F4	PowerF ◻	
F5	L.R.	
F6	ASSESS	https://47calc.com/doc/R47/Menus/R47v0_Menu_ASSESS_page_1.pdf
fF1	RootF ◻	
fF2	HypF ◻	
fF3	ParabF ◻	
fF4	CauchF ◻	
fF5	GaussF ◻	
fF6		
gF1	ResetF	
gF2	AllF	
gF3	BestF₁	
gF4	BestF#	
gF5		
gF6	OrthoF ◻	

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MULTSTK	Multi-stack commands					
g-shift						
f-shift	2STO	2RCL	nDROP	nDUP	nSWAP	
unshifted	3STO	3RCL	3DROP	3DUP	3SWAP	4SWAP
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MULTSTK	MENU	Multi-stack commands	Multi-stack commands	*Stack*		MULTSTK	
F1	3STO	Command	Store X, Y, Z	Store X, Y, Z to three consecutive registers, specify first register using TAM ; TAM : 3STO __ Tam menu	*Stack*		3STO	
F2	3RCL	Command	Recall X, Y, Z	Recall X, Y, Z from three consecutive registers, specify first register using TAM ; TAM : 3RCL __ Tam menu	*Stack*		3RCL	
F3	3DROP	Command	Drop X, Y, Z	Drop X, Y, Z	*Stack*		3DROP	
F4	3DUP	Command	Duplicate X, Y, Z to T, A, B	Duplicate X, Y, Z to T, A, B	*Stack*		3DUP	
F5	3SWAP	Command	Swap X, Y, Z and T, A, B	Swap X, Y, Z and T, A, B	*Stack*		3SWAP	
F6	4SWAP	Command	Swap X, Y, Z, T and A, B, C, D	Swap X, Y, Z, T and A, B, C, D ; 0 :	*Stack*		4SWAP	
fF1	2STO	Command	Store X, Y	Store X, Y to two consecutive registers, specify first register using TAM	*Stack*		2STO	
fF2	2RCL	Command	Recall X, Y	Recall X, Y from two consecutive registers, specify first register using TAM	*Stack*		2RCL	
fF3	nDROP	Command	Drop n stack registers	Drop bottom n stack registers (n = 1-4) ; TAM : nDROP _ TamNonReg menu	*Stack*		NDROP	
fF4	nDUP	Command	Duplicate n stack registers	Duplicate bottom n stack registers to the n stack registers above (n = 1-4) ; TAM : nDUP _ TamNonReg menu	*Stack*		NDUP	
fF5	nSWAP	Command	Swap n stack registers	Swap bottom n stack registers with the n stack registers above (n = 1-4) ; TAM : nSWAP _ TamNonReg menu	*Stack*		NSWAP	
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Myα	MyAlpha					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Myα	MENU	MyAlpha	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R ; Shortcut : alpha long [EXIT] ; EIM long [EXIT] ; alpha long [<g>] (because KEY.LP is SET ; also available in alpha mode of PEM)	*Customisation*		Myα	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	DRG	CC	$e^{i\times}$	$e^{\times}$	$i_{\otimes}$	i
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MULTSTK_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_2.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	DRG	Function (monadic, cyclic, nonpgm)	Degrees-radians-gradians	Add ADM tag to untagged value in X, convert tagged value to degrees-radians-gradians (cyclic) ; Info : Setting tag for complex X also sets POLAR mode for X according to ADM	*Angle conversions*		DRG	
F2	CC	Command	Compose-cut	Convert to or from Complex number (2.0-2.5) ; Info : a CC b ENTER returns a+bi or a∡b (using angle tag, regardless of POLAR, or ADM) ; CC returns Y : a, X : b ; also accepts 1x2 vectors as input	*Complex numbers*		CC	
F3	e^{ix}	Function (monadic)	Euler's formula	Rotate complex unit vector by X radians : e^{ix} = cos(x) + i sin(x) ; Info : i or j displayed in stack and on soft buttons	*Mathematics*	CPXj	e^{ix}	
F4	e^{x}	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^{x}	
F5	$i_{\odot}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\odot}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\odot}$	
F6	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	i	CPX	π	MATX	TRG_R47	e^x
Page 2	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_3.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F2	CPX	MENU	Complex functions	Complex functions ; Ref : https://47calc.com/doc/Application%20Notes/AN0001_C47_R47_JM_Complex_number_engineering_example.pdf	*Complex numbers*		CPX	
F3	π	Command	pi	Enter value of pi on the stack	*Constants*			
F4	MATX	MENU	Matrix	Matrix functions ; a matrix is displayed in X and shown in other stack registers as [m×n Matrix] or [m×n ℂ Matrix] when containing complex element(s) ; Ref : https://47calc.com/doc/Application%20Notes/AN0020_C47_R47_Matrix_and_Vector.pdf ; Info : monadic functions work per matrix element (except 1/x, which is a shortcut for $[M]^{-1}$, use -1 y^x instead ; and $\sqrt{x}$, which is a shortcut for MSQRT, use 0.5 y^x instead) ; in edit mode, all functions work per element ; use registers to input calculation results	*Matrix operations*		MATX	
F5	TRG_R47	MENU	Trigonometry	Trigonometry functions ; Info : TRG_R47 replaces C47 menu TRG ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMS-HMS.pdf	*Trigonometry*		TRG_R47	
F6	e^x	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^x	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p2	MyM	Link
F1	i	
F2	CPX	https://47calc.com/doc/R47/Menus/R47v0_Menu_CPX_page_1.pdf
F3	π	
F4	MATX	https://47calc.com/doc/R47/Menus/R47v0_Menu_MATX_page_1.pdf
F5	TRG_R47	https://47calc.com/doc/R47/Menus/R47v0_Menu_TRG_R47_page_1.pdf
F6	e^x	
f F1		
f F2		
f F3		
f F4		
f F5		
f F6		
g F1		
g F2		
g F3		
g F4		
g F5		
g F6		

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	%	Δ%	y^x	x^2	10^x	FIN
Page 3	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_2.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_4.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	%	Function (dyadic)	Percent	X Percent of Y, keeping Y on stack -- see Formula_PC.png : https://47calc.com/doc/Images/Formula_PC.png	*Financial*		%	
F2	Δ%	Function (dyadic)	Delta percent	Delta percentage from Y to X, keeping Y on stack -- see Formula_DELTAPC.png : https://47calc.com/doc/Images/Formula_DELTAPC.png ; TI : Δ% :	*Financial*		Δ%	
F3	y^x	Function (dyadic)	y to the power x	Raise value in the Y-register to the power in the X-register	*Mathematics*		y^x	
F4	x^2	Function (monadic)	Square	Square of X	*Mathematics*		x^2	
F5	10^x	Function (monadic)	10 to the power x	Raise 10 to the power in the X-register	*Mathematics*		10^x	
F6	FIN	MENU	Financial	Financial calculations including time value of money (TVM) and TVM cash flow ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Formulas.pdf	*Financial*		FIN	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p3	MyM	Link
F1	%	
F2	Δ%	
F3	y^x	
F4	x^2	
F5	10^x	
F6	FIN	https://47calc.com/doc/R47/Menus/R47v0_Menu_FIN_page_1.pdf
f F1		
f F2		
f F3		
f F4		
f F5		
f F6		
g F1		
g F2		
g F3		
g F4		
g F5		
g F6		

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	DMCP	ActUSB	SAVE	LOAD	SAVEST	LOADST
Page 4	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_3.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_5.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	DMCP	Command (HW)	Access DMCP menu	Access DMCP menu ; hardware only ; use EXIT to return without RESET -- see https://technical.swissmicros.com/dm42/doc/dm42_user_manual.html#dmcp_sys_menu ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMCP_menu.pdf	*System*		DMCP	
F2	ActUSB	Command (HW)	Activate USB disk	Activate USB disk without exiting to DMCP ; hardware only ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*System*		ActUSB	
F3	SAVE	Command (nonpgm)	Save full backup	Save full backup to file SAVFILES/R47.sav in FAT ; TI : Saved ; Directory : SAVFILES/	*Input-Output*		SAVE	
F4	LOAD	Command (nonpgm)	Load full backup	Load full backup from SAVE file SAVFILES/R47.sav in FAT and auto-clear USER mode ; key assignments will be ignored when loading from a backup file created on a different model (C47 versus R47 and vice versa) ; TI : Backup restored + <version info> ; Directory : SAVFILES/	*Input-Output*		LOAD	
F5	SAVEST	Command (nonpgm)	Save full state file	Save backup file (.s47) in FAT for LOADST ; the state file contains the complete state of the calculator: all memory content (registers, variables, programs, equations), all user assignments (key assignments, user menus) and all settings ; TI : Saving state file ... ; Saved ; DMCP File save dialog ("Save Calculator State" -- STATE/)	*Input-Output*		SAVEST	
F6	LOADST	Command (nonpgm)	Load state	Load state from SAVEST backup file (.s47) in FAT and clear USER mode ; if full state, presenting "WARNING: Current calculator state will be lost. Press [ENTER] to confirm." ; key assignments will be ignored when loading from a state file created on a different model (C47 versus R47 and vice versa) ; TI : Loading state file ... ; State file loaded ; DMCP File open dialog ("Load Calculator State" -- STATE/)	*Input-Output*		LOADST	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	DRG	y^x	x^2	10^x	e^x	$i_{\odot}$
Page 5	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_4.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_6.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p5	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	DRG	Function (monadic, cyclic, nonpgm)	Degrees-radians-gradians	Add ADM tag to untagged value in X, convert tagged value to degrees-radians-gradians (cyclic) ; Info : Setting tag for complex X also sets POLAR mode for X according to ADM	*Angle conversions*		DRG	
F2	y^x	Function (dyadic)	y to the power x	Raise value in the Y-register to the power in the X-register	*Mathematics*		y^x	
F3	x^2	Function (monadic)	Square	Square of X	*Mathematics*		x^2	
F4	10^x	Function (monadic)	10 to the power x	Raise 10 to the power in the X-register	*Mathematics*		10^x	
F5	e^x	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^x	
F6	$i_{\odot}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\odot}$ b ENTER results in a ∡ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\odot}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	i	$i_{\odot}$	x!	$\sqrt[x]{y}$	10^x	e^x
Page 6	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_5.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_7.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p6	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	i	Command	Complex number (rectangular notation)	Enter complex number (rectangular notation) whether RECT is set or not ; e.g. a i b ENTER results in a + b i ; Info : In NIM, works like CC with RECT set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_i	
F2	$i_{\odot}$	Command	Complex number (polar notation)	Enter complex number (polar notation) whether POLAR is set or not ; e.g. a $i_{\odot}$ b ENTER results in a $\measuredangle$ b (according to ADM) ; Info : In NIM, works like CC with POLAR set ; displayed according to flag CPXj when in RECT mode	*Complex numbers*	CPXj	op_$i_{\odot}$	
F3	x!	Function (monadic)	Factorial x! or Γ(x+1)	For Long integers : x! ; for Reals : Γ(x+1) ; Info : Max integer: 450 (up to 1000 digits accurate) ; max real : 2123.549 956 662 463 236 31 ; integers > max are converted to reals	*Mathematics*		x!	
F4	$\sqrt[x]{y}$	Function (dyadic)	xth root	Xth root of Y	*Mathematics*		$\sqrt[x]{y}$	
F5	10^x	Function (monadic)	10 to the power x	Raise 10 to the power in the X-register	*Mathematics*		10^x	
F6	e^x	Function (monadic)	e to the power x	Raise e to the power in the X-register	*Mathematics*		e^x	
f F1								
f F2								
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	%+MG	%T	%	Δ%	TVM	FIN
Page 7	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_6.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_8.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p7	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	%+MG	Function (dyadic)	Sales price having margin	Find sales price having margin of X percent over cost Y : %+MG = Y / (1 - X/100) -- see Formula_PCPMG.png : https://47calc.com/doc/Images/Formula_PCPMG.png ; Info : Margin is percentage of sales price	*Financial*		%+MG	
F2	%T	Function (dyadic)	Percentage of total	Percentage of total, keeping Y on stack -- see Formula_PCT.png : https://47calc.com/doc/Images/Formula_PCT.png ; TI : % :	*Financial*		%T	
F3	%	Function (dyadic)	Percent	X Percent of Y, keeping Y on stack -- see Formula_PC.png : https://47calc.com/doc/Images/Formula_PC.png	*Financial*		%	
F4	Δ%	Function (dyadic)	Delta percent	Delta percentage from Y to X, keeping Y on stack -- see Formula_DELTAPC.png : https://47calc.com/doc/Images/Formula_DELTAPC.png ; TI : Δ% :	*Financial*		Δ%	
F5	TVM	MENU	Time value of money	Time value of money functions ; Info : When menu TVM is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM ; TVM variable values are displayed as subscripts ; symbol ₍₍ is used for very small values ; symbol ₎₎ for very large values ; Ref : https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf	*Financial*		TVM	
F6	FIN	MENU	Financial	Financial calculations including time value of money (TVM) and TVM cash flow ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Formulas.pdf	*Financial*		FIN	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p7	MyM	Link
F1	%+MG	
F2	%T	
F3	%	
F4	Δ%	
F5	TVM	https://47calc.com/doc/R47/Menus/R47v0_Menu_TVM_page_1.pdf
F6	FIN	https://47calc.com/doc/R47/Menus/R47v0_Menu_FIN_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	DMCP	ActUSB	WRITEP	READP	SAVEST	LOADST
Page 8	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_7.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_9.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p8	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	DMCP	Command (HW)	Access DMCP menu	Access DMCP menu ; hardware only ; use EXIT to return without RESET -- see https://technical.swissmicros.com/dm42/doc/dm42_user_manual.html#dmcp_sys_menu ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMCP_menu.pdf	*System*		DMCP	
F2	ActUSB	Command (HW)	Activate USB disk	Activate USB disk without exiting to DMCP ; hardware only ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*System*		ActUSB	
F3	WRITEP	Command	Write/save program	Write/save program to backup file (.p47) in FAT for READP ; TAM : WRITEP _ TamLblOnly menu ; DMCP : File save dialog ("Save Program" -- PROGRAMS/) ; TI : Saved	*Input-Output*		WRITEP	
F4	READP	Command	Read/load program	Read/load program from WRITEP backup file (.p47) in FAT ; TI : Program file loaded ; DMCP File open dialog ("Load Program" -- PROGRAMS/)	*Input-Output*		READP	
F5	SAVEST	Command (nonpgm)	Save full state file	Save backup file (.s47) in FAT for LOADST ; the state file contains the complete state of the calculator: all memory content (registers, variables, programs, equations), all user assignments (key assignments, user menus) and all settings ; TI : Saving state file ... ; Saved ; DMCP File save dialog ("Save Calculator State" -- STATE/)	*Input-Output*		SAVEST	
F6	LOADST	Command (nonpgm)	Load state	Load state from SAVEST backup file (.s47) in FAT and clear USER mode ; if full state, presenting "WARNING: Current calculator state will be lost. Press [ENTER] to confirm." ; key assignments will be ignored when loading from a state file created on a different model (C47 versus R47 and vice versa) ; TI : Loading state file ... ; State file loaded ; DMCP File open dialog ("Load Calculator State" -- STATE/)	*Input-Output*		LOADST	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	DRG	DSP$_3$	dZ.0 ◻	FF	R↑	x!
Page 9	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyMenu_page_10.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p9	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	DRG	Function (monadic, cyclic, nonpgm)	Degrees-radians-gradians	Add ADM tag to untagged value in X, convert tagged value to degrees-radians-gradians (cyclic) ; Info : Setting tag for complex X also sets POLAR mode for X according to ADM	*Angle conversions*		DRG	
F2	DSP_3	Setting (pgm)	Display precision	Set display mode precision (only) ; applies to FIX, SCI, ENG, UNIT, SIG, ALL ; TAM : DSP __ TamNonReg menu	*Display*		DSP_3	3
F3	dZ.0 ◻	Setting	Display Long integers as Real	Switch on displaying Long integers as Real ; not programmable - in PEM, use flag dZ.0 ; Info : dZ.0 overrules dLrgLI ; Prefix : ℤ : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "Z:" even if dZ.0 is CLEAR ; button shows current radix preference	*Integers*	dZ.0	dZ.0 ◻	OFF
F4	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
F5	R↑	Command	Roll up	Roll up stack	*Stack*		R↑	
F6	x!	Function (monadic)	Factorial x! or Γ(x+1)	For Long integers : x! ; for Reals : Γ(x+1) ; Info : Max integer: 450 (up to 1000 digits accurate) ; max real : 2123.549 956 662 463 236 31 ; integers > max are converted to reals	*Mathematics*		x!	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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MyM	MyMenu					
g-shift						
f-shift						
unshifted	STOPW	DSP_3	dZ.0 ◻	FF	LOOP	TEST
Page 10	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_MyAlpha_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p10	MyM	MENU	MyMenu	User menu presenting a ribbon to quickly access user selected functions (and menus) ; all buttons are user assignable ('riveted' look) ; set by RIBBONS ; reset using MyM.R ; default ribbon M.R47 ; Shortcut : longpress [<g>] (because KEY.LP is SET ; also available in Normal Mode of PEM ; it is hinted at by the white keyboard label «CUST») ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Info : ribbons are documenten on page 1 : M.CPX ; 2 : M.ENG ; 3 : M.FIN ; 4 : M.SAV ; 5 : M.C47 ; 6 : M.R47 ; 7 : M.FIN+ ; 8 : M.SAV+	*Customisation*		MyMenu	
F1	STOPW	App	Stopwatch	Stopwatch with running time, counter and countdown (playing BEEP after running down) ; SBI : ⏱	*Time functions*	RUNTIM	STOPW	
F2	DSP_3	Setting (pgm)	Display precision	Set display mode precision (only) ; applies to FIX, SCI, ENG, UNIT, SIG, ALL ; TAM : DSP __ TamNonReg menu	*Display*		DSP_3	3
F3	dℤ.0 ◻	Setting	Display Long integers as ℝeal	Switch on displaying Long integers as ℝeal ; not programmable - in PEM, use flag dℤ.0 ; Info : dℤ.0 overrules dLrgLI ; Prefix : ℤ : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "ℤ:" even if dℤ.0 is CLEAR ; button shows current radix preference	*Integers*	dℤ.0	dℤ.0 ◻	OFF
F4	FF	Command	Flip flag	Flip flag (toggle) ; TAM : FF __ TamFlag menu	*Programming*		FF	
F5	LOOP	MENU	Looping	Looping (programming) functions	*Programming*		LOOP	
F6	TEST	MENU	Testing	Testing functions	*Programming*		TEST	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p10	MyM	Link
F1	STOPW	
F2	DSP3	
F3	dZ.0 □	
F4	FF	
F5	LOOP	https://47calc.com/doc/R47/Menus/R47v0_Menu_LOOP_page_1.pdf
F6	TEST	https://47calc.com/doc/R47/Menus/R47v0_Menu_TEST_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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NEW (EQ_EDIT)	New equation					
g-shift						
f-shift	CAPS ◻	NUM ◻	$^{SUP}_{SUB}$ ◻	:	(	)
unshifted	e^x	x	^	√	←	→
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_NEW_page_2.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf
Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	NEW (EQ_EDIT)	MENU (item, nonpgm)	New equation	Open equation editor menu to create new equation (previous equation pushed) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.NEW	
F1	e^x	Symbol	e to the power x	e to the power x	*Mathematics and characters*			
F2	x	Symbol	Variable x	Variable x	*Equations*			
F3	^	Symbol	Raise to power	Raise to power ; Shortcut : alpha g[y^x] ; Info : Fontcode : $005E_{16}$	*Mathematics and characters*			
F4	√	Symbol	Square root	Square root ; Shortcut : alpha g[$\sqrt{x}$] ; Info : Fontcode : $221A_{16}$	*Mathematics and characters*			
F5	←	Arrow	Move cursor left	Move cursor left	*Navigation*			
F6	→	Arrow	Move cursor right	Move cursor right	*Navigation*			
fF1	CAPS ◻	Setting	Alpha capslock	Switch on alpha capslock ; not programmable ; Shortcut : alpha f[↑] / alpha f[↓] ; Info : sets initial case of menu A...Ω/α...ω and αINTL/αintl ; toggling alpha capslock clears Numlock ; SBI : A ; a	*Text input*	αCAP		OFF
fF2	NUM ◻	Setting	Numlock	Switch on numlock ; not programmable - in PEM, use flag NUM ; Shortcut : alpha f[↑] / alpha f[↓] ; SBI : *N*	*Numeric input*	NUM		OFF
fF3	$^{SUP}{}_{SUB}$ ◻	Setting (cyclic)	Normal-super-subscript	Cycle normal-super-subscript (locking) ; Shortcut : alpha g[↑] / alpha g[↓] ; Info : button shows $^{SUP}{}_{SUB}$; α^{SUP} ; α_{SUB} ; SBI : ${}_{A}A^{A}$; ${}_{a}a^{a}$; ${}_{N}N^{N}$	*Text input*			Normal
fF4	:	Character	Colon	Character : ; in the equation editor, the colon can be used to name an expression (<name> : <expression>) ; Shortcut : alpha f[R/S] ; Fontcode : $003A_{16}$	*Characters*			
fF5	(	Symbol	Left parenthesis	Open (left) parenthesis ; Fontcode : 0028_{16}	*Mathematics and characters*			
fF6	)	Symbol	Right parenthesis	Close (right) parenthesis ; Fontcode : 0029_{16}	*Mathematics and characters*			
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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NEW (EQ_EDIT)	New equation					
g-shift						
f-shift	ASIN	ACOS	ATAN	*i*	|	∡
unshifted	SIN	COS	TAN	π	←	→
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_NEW_page_3.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf
Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	NEW (EQ_EDIT)	MENU (item, nonpgm)	New equation	Open equation editor menu to create new equation (previous equation pushed) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.NEW	
F1	SIN	Function (monadic)	Sine	Sine	*Trigonometry*		SIN	
F2	COS	Function (monadic)	Cosine	Cosine	*Trigonometry*		COS	
F3	TAN	Function (monadic)	Tangent	Tangent	*Trigonometry*		TAN	
F4	π	Symbol	pi	Mathematical symbol π ; Shortcut : alpha g[R↓] ; Info : Fontcode : $03C0_{16}$; press [↑] for Π at [A...Ω.1] g F5	*Mathematics and characters*			
F5	←	Arrow	Move cursor left	Move cursor left	*Navigation*			
F6	→	Arrow	Move cursor right	Move cursor right	*Navigation*			
f F1	ASIN	Function (monadic)	Arc sine	Inverse sine ; Info : Returns the principal value of the inverse sine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCSIN	
f F2	ACOS	Function (monadic)	Arc cosine	Inverse cosine ; Info : Returns the principal value of the inverse cosine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCCOS	
f F3	ATAN	Function (monadic)	Arc tangent	Inverse tangent ; Info : Returns the principal value of the inverse tangent of X ; if flag SPCRES is SET, infinity input is allowed and the range is extended to [-90°, 90°] (inclusive)	*Trigonometry*	SPCRES	ARCTAN	
f F4	i	Symbol	Imaginary unit	Mathematical symbol i ; Info : Displayed according to flag CPXj	*Complex numbers*	CPXj		
f F5	|	Symbol	Bar	Open or close absolute value ; Shortcut : alpha g[STO] ; Info : Fontcode : $007C_{16}$	*Mathematics and characters*			
f F6	∡	Function (monadic)	Argument (angle)	Argument (angle) of ℂomplex number	*Complex numbers*		∡	
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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NEW (EQ_EDIT)	New equation					
g-shift						
f-shift	=					
unshifted	!	Poly4	X.EDIT	X.SWAP	←	→
Page 3	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Norml_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf
Ref 2 https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	NEW (EQ_EDIT)	MENU (item, nonpgm)	New equation	Open equation editor menu to create new equation (previous equation pushed) ; Info : EIM = Equation Input Mode ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Equation_editor.pdf	*Equations*		EQ.NEW	
F1	!	Symbol	Exclamation mark	In edit equation, used as Factorial x! or Γ(x+1) ; Shortcut : alpha g[^{1}/x] ; Info : Fontcode : 0021_{16}	*Mathematics and characters*			
F2	Poly4	Function (monadic)	Polynomial 4th degree	Create polynomial : a4 × x^4 + a3 × x^3 + a2 × x^2 +a1 × x + a0	*Mathematics*			
F3	X.EDIT	Command	Edit X	Edit contents of stack register X as text ; Shortcut : alpha long [ENTER] ; EIM long [ENTER]	*Text input*		X.EDIT	
F4	X.SWAP	Command	Swap X	Swap contents of X register with input of alpha buffer or equation editor	*Text input*		X.SWAP	
F5	←	Arrow	Move cursor left	Move cursor left	*Navigation*			
F6	→	Arrow	Move cursor right	Move cursor right	*Navigation*			
fF1	=	Symbol	Equal	Equal ; Info : Fontcode : $003D_{16}$	*Mathematics and characters*			
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Norml:	Normal & Log normal distribution					
g-shift	STO_M μ	STO_S σ				
f-shift	$LgNrm_p$		$LgNrm_{\triangle}$	$LgNrm_{\triangle}$		$LgNrm^{-1}$
unshifted	$Norml_p$		$Norml_{\triangle}$	$Norml_{\triangle}$		$Norml^{-1}$
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_NUMBRS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Norml:	MENU	Normal & Log normal distribution	Normal & Log normal probability distribution (continuous) ; TI : RegM = μ = ; RegS = σ =	*Probability (real)*		Norml:	
F1	$Norml_p$	Function (monadic)	Normal pdf	Normal probability density function	*Probability (real)*		$Norml_p$	
F2								
F3	$Norml_{◭}$	Function (monadic)	Normal cdf (lower)	Normal cumulative distribution (lower tail)	*Probability (real)*		$Norml_{◭}$	
F4	$Norml_{◮}$	Function (monadic)	Normal cdf (upper)	Normal cumulative distribution (upper tail)	*Probability (real)*		$Norml_{◮}$	
F5								
F6	$Norml^{-1}$	Function (monadic)	Normal qf (inverse)	Normal inverse cumulative distribution (quantile)	*Probability (real)*		$Norml^{-1}$	
fF1	$LgNrm_p$	Function (monadic)	Log normal pdf	Log normal probability density function	*Probability (real)*		$LgNrm_p$	
fF2								
fF3	$LgNrm_{◭}$	Function (monadic)	Log normal cdf (lower)	Log normal cumulative distribution (lower tail)	*Probability (real)*		$LgNrm_{◭}$	
fF4	$LgNrm_{◮}$	Function (monadic)	Log normal cdf (upper)	Log normal cumulative distribution (upper tail)	*Probability (real)*		$LgNrm_{◮}$	
fF5								
fF6	$LgNrm^{-1}$	Function (monadic)	Log normal qf (inverse)	Log normal inverse cumulative distribution (quantile)	*Probability (real)*		$LgNrm^{-1}$	
gF1	STO_M μ	Command	Store μ in M	Store parameter μ : location in register M ; Split screen : RegM = μ =	*Probability (real)*			
gF2	STO_S σ	Command	Store σ in S	Store parameter σ : scale in register S ; Split screen : RegS = σ =	*Probability (real)*			
gF3								
gF4								
gF5								
gF6								

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▫ KEY	Special <none> hotkey assignments					
g-shift						
f-shift	->nil ○					N→U
unshifted	->Σ+ ○	->USER ○	->α ○	->SNAP ○	->STPW ○	U→N
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	◻ KEY	MENU	Special <none> hotkey assignments	Special hotkey assignments to key <none> in NORMAL mode ; Info : NORMAL-assignable hotkey is not available in layout R47v0, pressing any of the menu buttons returns Error 47 -- This item cannot be assigned here	*Customisation*		◻Σ+KEY	
F1	→Σ+ O	Setting (pgm)	<none>Σ+	Assign Σ+ to <none> hotkey for NORMAL mode ONLY & deactivate USER mode ; Info : Shown in KEYMAP as Σ+ (normal)	*Customisation*			OFF
F2	→USER O	Setting (pgm)	<none>USER	Assign USER to <none> hotkey for NORMAL mode ONLY & deactivate USER mode ; Info : Shown in KEYMAP as [USER] (inverse)	*Customisation*			OFF
F3	→α O	Setting (pgm)	<none>α	Assign α to <none> hotkey for NORMAL mode ONLY & deactivate USER mode ; Info : Shown in KEYMAP as [α] (inverse) and in simulator as bright orange key	*Customisation*			OFF
F4	→SNAP O	Setting (pgm)	<none>SNAP	Assign SNAP to <none> hotkey for NORMAL mode ONLY & deactivate USER mode ; Info : Shown in KEYMAP as [SNAP] (inverse)	*Customisation*			OFF
F5	→STPW O	Setting (pgm)	<none>STOPW	Assign STOPW to <none> hotkey for NORMAL mode ONLY & deactivate USER mode ; Info : Shown in KEYMAP as [STOPW] (inverse)	*Customisation*			OFF
F6	U→N	Command	Copy USER assignment to <none>	Copy <none> USER assignment to <none> NORMAL assignment and deactivate USER mode	*Customisation*			
fF1	→nil O	Setting (pgm)	<none>nil	Assign nothing to <none> hotkey for NORMAL mode ONLY & deactivate USER mode ; Info : Shown in KEYMAP as ""	*Customisation*			OFF
fF2								
fF3								
fF4								
fF5								
fF6	N→U	Command	Copy <none> assignment to USER	Copy <none> NORMAL assignment to <none> USER assignment and activate USER mode ; Info : Does not copy →g or →f/g assignment	*Customisation*			
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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NUMBRS	Number variables					
g-shift	↑Y	↓EST	↓Lim	↓X	↓Y	
f-shift	PMT	PPER/a	PV	↑EST	↑Lim	↑X
unshifted	ACC	CPER/a	FV	GRAMOD	I%/a	NPPER
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	NUMBRS	MENU	Number variables	Auto-generated catalog of variables of the specified datatype : Number (0 ; 1.0-1.5 ; 2.0-2.5)	*Catalog*		NUMBRS	
F1	ACC	Variable (real)	Accuracy of the integrator	Reserved Real variable for the accuracy of the integrator (ACC) ; set interactively from menu Tool∫ ; TI : 'ACC' :	*Integrator*		ACC	0
F2	CPER/a	Variable (real)	TVM compounding periods	Reserved Real variable for the TVM compounding periods per annum (cp/a) ; displays as c_a or c in menu TVM when value ≠ 0 ; TI : CPER/a = Compounding periods p.a. =	*Financial*		CPER/a	12
F3	FV	Variable (real)	TVM future value	Reserved Real variable for the TVM future value (FV) ; displays as F in menu TVM when value is large ; TI : FV = Future Value =	*Financial*		FV	0
F4	GRAMOD	Variable (longint)	Graphics display mode	Reserved LongInteger variable for the graphics display mode (GRAMOD) ; set interactively from menu P.FN1 (AGRAPH) ; Info : OR: 0 ; SET: 1 ; OFF: 2 ; XOR: 3	*Programming*		GRAMOD	0
F5	I%/a	Variable (real)	TVM annual interest rate	Reserved Real variable for the TVM annual interest rate as percentage (I/a) ; use 10 for 10%, not 0.1 ; displays as I_a or I in menu TVM when value is large ; TI : I%/a = I%YR = APR =	*Financial*		I%/a	0
F6	NPPER	Variable (real)	TVM number of payments	Reserved Real variable for the TVM number of payments (n) ; TI : NPPER = n pay periods =	*Financial*		NPPER	0
fF1	PMT	Variable (real)	TVM payment	Reserved Real variable for the TVM payment (PMT) ; displays as P_m or P in menu TVM when value is large ; TI : PMT = Payment =	*Financial*		PMT	0
fF2	PPER/a	Variable (real)	TVM payment period	Reserved Real variable for the TVM payment period per annum (pp/a) ; displays as p_a or p in menu TVM when value ≠ 0 ; TI : PPER/a = Pay periods p.a. =	*Financial*		PPER/a	12
fF3	PV	Variable (real)	TVM present value	Reserved Real variable for the TVM present value (PV) ; displays as P_v or P in menu TVM when value is large ; TI : PV = Present Value =	*Financial*		PV	0
fF4	↑EST	Variable (real)	Upper estimate for solver	Reserved Real variable for the upper estimate for solver (↑Est) ; displays as ↑E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$_y^x$ or cpxSlv$_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↑EST	0
fF5	↑Lim	Variable (real)	Upper limit for integrator	Reserved Real variable for the upper limit for integrator (↑Lim) ; displays as ↑L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↑ Upper limit :	*Integrator*		↑Lim	0
fF6	↑X	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by Draw$_y^x$; TI : '↑X' :	*Plotting*		↑X	10
gF1	↑Y	Variable (real)	Upper limit for Y-axis	Reserved Real variable for the upper limit for Y-axis (↑Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↑Y' :	*Plotting*		↑Y	10
gF2	↓EST	Variable (real)	Lower estimate for solver	Reserved Real variable for the lower estimate for solver (↓Est) ; displays as ↓E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$_y^x$ or cpxSlv$_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↓EST	0
gF3	↓Lim	Variable (real)	Lower limit for integrator	Reserved Real variable for the lower limit for integrator (↓Lim) ; displays as ↓L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↓ Lower limit :	*Integrator*		↓Lim	0
gF4	↓X	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$_y^x$; TI : '↓X' :	*Plotting*		↓X	-10
gF5	↓Y	Variable (real)	Lower limit for Y-axis	Reserved Real variable for the lower limit for Y-axis (↓Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↓Y' :	*Plotting*		↓Y	0
gF6								

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NumTh	Number theory functions					
g-shift						
f-shift	M.FACT	ϕ_E				
unshifted	FACTORS	σ_0	σ_1	σ_k	σ_1^*	σ_k^*
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Orthog_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	NumTh	MENU	Number theory functions	Number theory functions -- see https://en.wikipedia.org/wiki/Divisor_function	*Mathematics*		NumTh	
F1	FACTORS	Function (monadic)	Prime factors	Prime factors of the integer input in X ; factors are calculated in Long integer, stored as Real number (34 digits) and returned as a 2 row matrix (row 1 contains the primes, row 2 contains the powers) ; shows status, number being tested and last factor found ; interrupt by [EXIT] ; registers G, H, K are used to store the last three factors, in Long integer (register K stores the remaining number to be factorised after interrupt) -- see https://en.wikipedia.org/wiki/Pollard's_rho_algorithm ; https://en.wikipedia.org/wiki/Shanks%27s_square_forms_factorization ; Info : Pollard's rho algorithm and Shanks's square forms factorization are used ; prime factors will be accurate up to 3 317 044 064 679 887 385 961 980 ; for input values > 34 digits, the long integer factors are saved in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; during execution, status info may be shown: Factors: Small prime trial: p = Factors: Perfect Sq trial: p = Factors: Shanks/Pollard↑: n = Factors: Shanks/Pollard↓: n =	*Integers*		FACTORS	
F2	σ_0	Function (monadic)	Divisor count function (k = 0)	Divisor count function (k = 0) using either a FACTORS matrix or Long integer as input in X	*Mathematics*		σ_0	
F3	σ_1	Function (monadic)	Sigma function (k = 1)	Sigma function (k = 1) using either a FACTORS matrix or Long integer as input in X	*Mathematics*		σ_1	
F4	σ_k	Function (dyadic)	Generalised sigma function	Generalised sigma function using either a FACTORS matrix or Long integer as input in X	*Mathematics*		σ_k	
F5	σ_1^*	Function (monadic)	Proper sigma function	Proper sigma function using either a FACTORS matrix or Long integer as input in X	*Mathematics*		σ_1^*	
F6	σ_k^*	Function (dyadic)	Generalised proper sigma function	Generalised proper sigma function using either a FACTORS matrix or Long integer as input in X	*Mathematics*		σ_k^*	
fF1	M.FACT	Function (monadic)	Multiply (prime) factors	Multiply (prime) factors from a 2 row matrix in X (row 1 contains the factors, row 2 contains the powers) ; Info : E.g. use FACTORS matrix as input in X	*Integers*		M.FACT	
fF2	ϕ_E	Function (monadic)	Euler's totient function	Euler's totient function using either a FACTORS matrix or Long integer as input in X -- see https://en.wikipedia.org/wiki/Euler's_totient_function	*Mathematics*		ϕ_E	
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Orthog	Orthogonal polynomials					
g-shift						
f-shift	H_{nP}					
unshifted	H_n	L_m	$L_m^{(\alpha)}$	P_n	T_n	U_n
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Orthog	MENU	Orthogonal polynomials	Orthogonal polynomials	*Mathematics*		ORTHOG	
F1	H_n	Function (dyadic)	Hermite polynomials (probability)	Hermite polynomials (probability) ; Parameter : x = X ; n = Y	*Mathematics*		H_n	
F2	L_m	Function (dyadic)	Laguerre polynomials	Laguerre polynomials ; Parameter : x = X ; m = Y	*Mathematics*		L_m	
F3	$L_m^{(\alpha)}$	Function (triadic)	Laguerre generalised polynomials	Laguerre generalised polynomials ; Parameter : x = X ; m = Y ; α = Z	*Mathematics*		$L_m^{(\alpha)}$	
F4	P_n	Function (dyadic)	Legendre polynomials	Legendre polynomials ; Parameter : x = X ; n = Y	*Mathematics*		P_n	
F5	T_n	Function (dyadic)	Chebyshev polynomials (1st)	Chebyshev polynomials of the 1st kind ; Parameter : x = X ; n = Y	*Mathematics*		T_n	
F6	U_n	Function (dyadic)	Chebyshev polynomials (2nd)	Chebyshev polynomials of the 2nd kind ; Parameter : x = X ; n = Y	*Mathematics*		U_n	
fF1	H_{nP}	Function (dyadic)	Hermite polynomials (physics)	Hermite polynomials (physics) ; Parameter : x = X ; n = Y	*Mathematics*		H_{nP}	
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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P.FN	Programming functions					
g-shift	EDIT				P.FN3	P.FN2
f-shift					LOOP	TEST
unshifted	LBL	GTO	XEQ	RTN	END	P.FN1
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN1_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	P.FN	MENU	Programming functions	User menu to quickly access selected menus and functions for programming ; all buttons are user assignable ('riveted' look) ; initially populated for basic programming options ; reset using PFN.R ; Shortcut : PEM long [EXIT]	*Programming*		P.FN	
F1	LBL	Command (PEM)	Label	Create global or local label ; create global label by pressing key α (f[XEQ]) and entering the name, which will be displayed as '<label>' ; local labels only exist within the scope of the program ; they are numeric : 01-99, single letter : a-l or {A}-{E}, {F}, {G}-{L} ; or created as local named labels, by pressing button : ([TamLabel.1]F3), then button α ([TamLocalLabel.1]F3) or key α (f[XEQ]) and entering the name, which will be displayed as :<label>: ; maximum label length is : 7 characters ; TAM : LBL __ TamLabel menu ; Info : LBL + TAM [XEQ] to enter global LBL '… TamAlpha menu ; LBL + button : on [TamLabel.1]F3 to enter LBL :__ TamLocalLabel menu to create local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter LBL :… TamAlpha menu) ; note that a label may be used multiple times in a program ; local labels are searched forwards from the GTO or XEQ command, before global labels, which are searched from the start of program memory	*Programming*		LBL	
F2	GTO	Command (PEM)	Go to	Go to global or local label ; GTO. to go to (local) label or step ; GTO.. to move the program pointer to the end of program memory ; GTO↑ to go to the start of the (previous) program or jump to the start of program memory ; GTO↓ to go to the next program or jump to the end of program memory ; TAM : GTO __ TamLabel menu ; Info : GTO + TAM [XEQ] to enter global GTO '… TamAlpha menu ; GTO + button : on [TamLabel.1]F3 to enter GTO :__ TamLocalLabel menu for easy access to local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter GTO :… TamAlpha menu)	*Programming*		GTO	
F3	XEQ	Command (PEM)	Execute	Execute function or program with global or local label (normal spaces can be used instead of special spaces in labels) ; TAM : XEQ __ TamLabel menu ; Info : XEQ + TAM [XEQ] to enter global XEQ '… TamAlpha menu ; XEQ + button : on [TamLabel.1]F3 to enter XEQ :__ TamLocalLabel menu for easy access to local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter XEQ :… TamAlpha menu)	*Programming*		XEQ	
F4	RTN	Command (PEM)	Return	Return from subroutine to calling program	*Programming*		RTN	
F5	END	Command (PEM)	End	End statement	*Programming*		END	
F6	P.FN1	MENU	Programming functions 1	Programming functions 1 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN1	
fF1								
fF2								
fF3								
fF4								
fF5	LOOP	MENU	Looping	Looping (programming) functions	*Programming*		LOOP	
fF6	TEST	MENU	Testing	Testing functions	*Programming*		TEST	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF1	EDIT	Command	Edit item	Edit item in X (any data type, except Config) in Normal Mode ; edit text strings, numbers or function parameters in the current step in Program Entry Mode ; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM) ; when editing short integers, key .d removes the base (Normal Mode and PEM) ; Shortcut : longerpress [←] ; alpha longer [←] ; PEM long [←] ; EIM longer [←] ; Info : editing of long integers is limited to two input lines (about 99 digits depening on display settings) ; also note that for new models and simulator, the full set of features is supported (Complex numbers not yet implemented), but for DM42 hardware, numbers cannot be edited	*User interface*		EDIT	
gF2								
gF3								
gF4								
gF5	P.FN3	MENU	Programming functions 3	Programming functions 3 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN3	
gF6	P.FN2	MENU	Programming functions 2	Programming functions 2 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN2	

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p1	P.FN	Link
F1	LBL	
F2	GTO	
F3	XEQ	
F4	RTN	
F5	END	
F6	P.FN1	https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN1_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5	LOOP	https://47calc.com/doc/R47/Menus/R47v0_Menu_LOOP_page_1.pdf
fF6	TEST	https://47calc.com/doc/R47/Menus/R47v0_Menu_TEST_page_1.pdf
gF1	EDIT	
gF2		
gF3		
gF4		
gF5	P.FN3	https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN3_page_1.pdf
gF6	P.FN2	https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN2_page_1.pdf

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P.FN1	Programming functions 1					
g-shift	PIXEL	POINT	AGRAPH	ZOOM	PLTRST	PLTFCNS
f-shift	MSG	ERR	REM	KEY?	KTYP	PUTK
unshifted	INPUT	AVIEW	PROMPT	PAUSE	TICKS	P.FN2
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	P.FN1	MENU	Programming functions 1	Programming functions 1 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN1	
F1	INPUT	Command (PEM)	Input	Halt program execution, push current value, prompt and accept input for register or variable ; TAM : INPUT __ Tam menu	*Programming*		INPUT	
F2	AVIEW	Command (PEM)	Alpha view	View the register or variable contents (text string) in the top left part of the screen, without TI (for use in Program Entry Mode) ; if the contents include the ↲ symbol, optionally display one or more TI's at the top, X, Y, Z line ; example: "top line = ↲ X = ↲ Y = ↲ Z = " ; TAM : AVIEW __ Tam menu ; Info : if 🖶ACT is SET, AVIEW will print when executed from the keyboard in MAN, NORM or TRACE ; in Program Entry Mode, 🖶EN must be SET as well ; if 🖶ACT is CLEAR and 🖶EN is SET, AVIEW halts execution (R/S)	*Programming*		AVIEW	
F3	PROMPT	Command (PEM)	Prompt	Halt program execution and view the register or variable contents (text string) in the top left part of the screen, without TI (for use in Program Entry Mode) ; if the contents include the ↲ symbol, optionally display one or more TI's at the top, X, Y, Z line ; example: "top line = ↲ X = ↲ Y = ↲ Z = " ; TAM : PROMPT __ Tam menu ; Info : if 🖶EN is SET, PROMPT will print when executed from the keyboard in NORM or TRACE ; in Program Entry Mode, 🖶EN must be SET as well	*Programming*		PROMPT	
F4	PAUSE	Command (PEM)	Pause	Pause program for number of ticks ; range is nn in [0, 98], one tick is 100 ms ; special case : nn = 99 results in sleep mode ; TAM : PAUSE __ TamNonReg menu	*Programming*		PAUSE	
F5	TICKS	Command (PEM)	Ticks	Number of ticks counted since calculator was turned on (one tick is 100 ms)	*Programming*		TICKS	
F6	P.FN2	MENU	Programming functions 2	Programming functions 2 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN2	
fF1	MSG	Command (PEM)	Message	Show error message ; TAM : MSG __ TamNonReg menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Errors_and_messages.pdf	*Programming*		MSG	
fF2	ERR	Command (PEM)	Error	Raise error and show error message ; TAM : ERR __ TamNonReg menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Errors_and_messages.pdf	*Programming*		ERR	
fF3	REM	Command (PEM)	Remark	Comment line in program (maximum 160 characters) ; Info : REM '_' ALPHA (ALPHA) menu	*Programming*		REM	
fF4	KEY?	Command (logical, PEM)	Key pressed?	Test key was pressed : if it is NOT pressed, the next program stap will be executed and if it IS pressed, the next program step will be skipped and the keycode is stored in the register specified ; keycode range is 11-85, where the first digit is row, second digit is column number ; TAM : KEY? __ Tam menu ; Info : KEY? should not to be used in short loops, keeps calculator running on full power ; [R/S] and [EXIT] interrupt a program and KEY? will not work for those keys ; Ref : https://47calc.com/doc/R47/Reference/R47v0_KeyType.pdf	*Programming*		KEY?	
fF5	KTYP	Command (logical)	Key type?	Get key type for key code returned by KEY? ; TAM : KTYP __ Tam menu ; Info : https://47calc.com/doc/R47/Reference/R47v0_KeyType.pdf	*Programming*		KTYP	
fF6	PUTK	Command (PEM)	Put keycode in buffer	Copy keycode from register to keyboard buffer for immediate excecution ; TAM : PUTK __ Tam menu	*Programming*		PUTK	
gF1	PIXEL	Command (PEM)	Display pixel or thin line	Display one pixel at (X, Y) or draw a thin horizontal or vertical line at the (absolute) value of one or both negative coordinates ; this is a Program Entry Mode command ; use CLLCD to clear LCD and PAUSE to pause program for number of ticks in order to view graphic ; Info : Range is X in [0, 399] and Y in [0, 239] (400 x 240 display, where (0, 0) is bottom left) ; -0. is accepted as a valid negative input for line drawing	*Programming*		PIXEL	
gF2	POINT	Command (PEM)	Display point or thick line	Display 9 (3x3) pixels around (X, Y) or draw a thick horizontal or vertical line at the (absolute) value of one or both negative coordinates ; this is a Program Entry Mode command ; use CLLCD to clear LCD and PAUSE to pause program for number of ticks in order to view graphic ; Info : Range is X in [0, 399] and Y in [0, 239] (400 x 240 display, where (0, 0) is bottom left) ; -0. is accepted as a valid negative input for line drawing	*Programming*		POINT	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF3	AGRAPH	Command (PEM)	Alpha graphics	Show a 64 column pattern according to variable GRAMOD (OR: 0 ; SET: 1 ; OFF: 2 ; XOR: 3) ; this command will be redesigned and should not be used in programming! ; TAM : AGRAPH __ Tam menu	*Programming*		AGRAPH	
gF4	ZOOM	Command (PEM)	Zoom (plot)	Zoom plot to factor in X ; Info : -3..-1 : zoom out ; 0 : normal	*Programming*		ZOOM	
gF5	PLTRST	Command (PEM)	Reset plot	Reset all plot options and redraw graph ; Info : Resets options for lines, boxes, crosses, plusses and scaling ; PLTRST also resets ↓Y and ↑Y to zero	*Plotting*		PLTRST	
gF6	PLTFCNS	MENU (item)	Plot functions	Plot functions (programmable), displaying graph, value/tick, lower left and upper right coordinate and additional info according to settings ; displays plot options menu ; Info : Please note that this item is in development -- Error 59 : Undefined menu name -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting*		PLTFCNS	

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p1	P.FN1	Link
F1	INPUT	
F2	AVIEW	
F3	PROMPT	
F4	PAUSE	
F5	TICKS	
F6	P.FN2	https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN2_page_1.pdf
fF1	MSG	
fF2	ERR	
fF3	REM	
fF4	KEY?	
fF5	KTYP	
fF6	PUTK	
gF1	PIXEL	
gF2	POINT	
gF3	AGRAPH	
gF4	ZOOM	
gF5	PLTRST	
gF6	PLTFCNS	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLTFCNS_page_1.pdf

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P.FN2	Programming functions 2					
g-shift	R-COPY	R-SORT	R-SWAP	R-CLR		
f-shift	LocR	PopLR	CLMENU	OPENM	EXITall	42
unshifted	KEYG	KEYX	MENU	MVAR	VarMNU	P.FN3
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	P.FN2	MENU	Programming functions 2	Programming functions 2 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN2	
F1	KEYG	Command (PEM)	Key Go to	Used in Program Entry Mode to specify the label to go to when soft button (1-18) of the Programmable MENU, [↑] (19), [↓] (20) or [EXIT] (21) is pressed ; if button 1-18 is specified, KEYG also creates a soft button in the Programmable MENU with the string in X as a label ; TAM : KEYG → KEY __ TamKey menu ; KEY nn GTO __ TamLabel menu	*Programming*		KEYG	
F2	KEYX	Command (PEM)	Key Execute	Used in Program Entry Mode to specify the program to execute when soft button (1-18) of the Programmable MENU, [↑] (19), [↓] (20) or [EXIT] (21) is pressed ; if button 1-18 is specified, KEYX also creates a soft button in the Programmable MENU with the string in X as a label ; TAM : KEYX → KEY __ TamKey menu ; KEY nn XEQ __ TamLabel menu	*Programming*		KEYX	
F3	MENU	Command (PEM)	Display Programmable MENU	Display the Programmable MENU defined with KEYG and/or KEYX	*Programming*		MENU	
F4	MVAR	Command (PEM)	Define menu variable	Define menu variable in RPN program, for VarMNU, integrator, or solver ; creates variable if it does not exist ; TAM : MVAR __ TamVarOnly menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Variable_naming.pdf	*Programming*		MVAR	
F5	VarMNU	Command (PEM)	Variable menu	Create variable menu ; uses register K to store variable name when MVAR-defined button (<var…>) is pressed without NIM input ; TAM : VarMNU __ TamLblOnly menu ; Error 25 -- No MVAR found in selected program -- may be raised	*Programming*		VARMNU	
F6	P.FN3	MENU	Programming functions 3	Programming functions 3 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN3	
fF1	LocR	Command (PEM)	Allocate local registers	Allocate nn (0-99) local registers and 32 local flags (0-31) ; available in the current routine ; TAM : LocR __ TamNonReg menu ; Info : LocR nn (nn > 0) allocates local registers 00..nn-1 and local flags 00..31, LocR 00 allocates only the local flags	*Programming*		LocR	
fF2	PopLR	Command (PEM)	Pop local registers	Pop local registers (no return to calling routine)	*Programming*		PopLR	
fF3	CLMENU	Command	Clear (program) menu	Clear the programmable menu	*Cleanup*		CLMENU	
fF4	OPENM	Command (PEM)	Open menu	Open menu by (catalog) name, optionally followed by ↵ and page number ; TAM : OPENM _ TamMenu menu ; Info : ↵ is on [αMisc.1]F1 ; menu name and page can be stored in a register or variable ; Error 59 -- Undefined menu name -- may be raised	*Programming*		OPENM	
fF5	EXITall	Command (PEM)	Exit all	Exit all menus ; return to MyMenu (Normal Mode) ; exit VarMNU (program execution)	*Programming*		EXITALL	
fF6	42	MENU (42)	42-compatible operations	Functions and commands that are 100% compatible with the HP-42S/DM42(n) calculators ; Ref : https://47calc.com/doc/Application%20Notes/AN0026_C47_R47_DL_42S_Compatibility.pdf	*Compatibility*		42	
gF1	R-COPY	Command (PEM)	Copy registers	Copy registers, using range number in X (sss.nndd means registers from sss through sss + n - 1 to registers ddd through ddd + nn - 1)	*Programming*		R-COPY	
gF2	R-SORT	Command (PEM)	Sort registers	Sort registers by ascending value, using range number in X (sss.nn means registers from sss through sss + nn - 1) ; Info : R-SORT can also sort by time value stored in the registers	*Programming*		R-SORT	
gF3	R-SWAP	Command (PEM)	Swap registers	Swap registers, using range number in X (sss.nndd means registers from sss through sss + n - 1 to registers ddd through ddd + nn - 1)	*Programming*		R-SWAP	
gF4	R-CLR	Command (PEM)	Clear registers	Clear registers, using range number in X (sss.nn means registers from sss through sss + nn - 1)	*Programming*		R-CLR	
gF5								
gF6								

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p1	P.FN2	Link
F1	KEYG	
F2	KEYX	
F3	MENU	
F4	MVAR	
F5	VarMNU	
F6	P.FN3	https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN3_page_1.pdf
fF1	LocR	
fF2	PopLR	
fF3	CLMENU	
fF4	OPENM	
fF5	EXITall	
fF6	42	https://47calc.com/doc/R47/Menus/R47v0_Menu_42_page_1.pdf
gF1	R-COPY	
gF2	R-SORT	
gF3	R-SWAP	
gF4	R-CLR	
gF5		
gF6		

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P.FN3	Programming functions 3					
g-shift	EDIT	CASE	RCL.SKP			PFN.R
f-shift	SKIP	BACK	XEQ.SKP	RTN.SKP	LOOP	TEST
unshifted	LBL	GTO	XEQ	RTN	END	P.FN
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Pareto_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	P.FN3	MENU	Programming functions 3	Programming functions 3 ; this is a normal menu, buttons are not user assignable (P.FN is)	*Programming*		P.FN3	
F1	LBL	Command (PEM)	Label	Create global or local label ; create global label by pressing key α (f[XEQ]) and entering the name, which will be displayed as '<label>' ; local labels only exist within the scope of the program ; they are numeric : 01-99, single letter : a-l or {A}-{E}, {F}, {G}-{L} ; or created as local named labels, by pressing button : ([TamLabel.1]F3), then button α ([TamLocalLabel.1]F3) or key α (f[XEQ]) and entering the name, which will be displayed as :<label>: ; maximum label length is : 7 characters ; TAM : LBL __ TamLabel menu ; Info : LBL + TAM [XEQ] to enter global LBL '⌨ TamAlpha menu ; LBL + button : on [TamLabel.1]F3 to enter LBL :__ TamLocalLabel menu to create local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter LBL :⌨ TamAlpha menu) ; note that a label may be used multiple times in a program ; local labels are searched forwards from the GTO or XEQ command, before global labels, which are searched from the start of program memory	*Programming*		LBL	
F2	GTO	Command (PEM)	Go to	Go to global or local label ; GTO. to go to (local) label or step ; GTO.. to move the program pointer to the end of program memory ; GTO↑ to go to the start of the (previous) program or jump to the start of program memory ; GTO↓ to go to the next program or jump to the end of program memory ; TAM : GTO __ TamLabel menu ; Info : GTO + TAM [XEQ] to enter global GTO '⌨ TamAlpha menu ; GTO + button : on [TamLabel.1]F3 to enter GTO :__ TamLocalLabel menu for easy access to local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter GTO :⌨ TamAlpha menu)	*Programming*		GTO	
F3	XEQ	Command (PEM)	Execute	Execute function or program with global or local label (normal spaces can be used instead of special spaces in labels) ; TAM : XEQ __ TamLabel menu ; Info : XEQ + TAM [XEQ] to enter global XEQ '⌨ TamAlpha menu ; XEQ + button : on [TamLabel.1]F3 to enter XEQ :__ TamLocalLabel menu for easy access to local labels a-l, D-F or local named labels (additionally pressing button α on [TamLocalLabel.1]F3 or TAM [XEQ] to enter XEQ :⌨ TamAlpha menu)	*Programming*		XEQ	
F4	RTN	Command (PEM)	Return	Return from subroutine to calling program	*Programming*		RTN	
F5	END	Command (PEM)	End	End statement	*Programming*		END	
F6	P.FN	MENU	Programming functions	User menu to quickly access selected menus and functions for programming ; all buttons are user assignable ('riveted' look) ; initially populated for basic programming options ; reset using PFN.R ; Shortcut : PEM long [EXIT]	*Programming*		P.FN	
fF1	SKIP	Command (PEM)	Skip	Skip n program steps ; TAM : SKIP ___ TamNonReg menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Skipping_program_steps.pdf	*Programming*		SKIP	
fF2	BACK	Command (PEM)	Back	Jumps back n steps in program ; TAM : BACK __ TamNonReg menu	*Programming*		BACK	
fF3	XEQ.SKP	Command (PEM)	Execute and skip	Execute function or program with global or local label (normal spaces can be used instead of special spaces in labels) and skip the next instruction (intended use is after a test function, which if true, calls XEQ.SKP and jumps over the next program step, which means that step is executed only if the test function returns false) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Skipping_program_steps.pdf	*Programming*		XEQ.SKP	
fF4	RTN.SKP	Command (PEM)	Return and skip	Return from subroutine to calling program and skip the instruction following the calling XEQ (intended use is to allow a subroutine to function as a built in test function, which if true, returns using RTN and using RTN.SKP otherwise) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Skipping_program_steps.pdf	*Programming*		RTN.SKP	
fF5	LOOP	MENU	Looping	Looping (programming) functions	*Programming*		LOOP	
fF6	TEST	MENU	Testing	Testing functions	*Programming*		TEST	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF1	EDIT	Command	Edit item	Edit item in X (any data type, except Config) in Normal Mode ; edit text strings, numbers or function parameters in the current step in Program Entry Mode ; when editing angles using EDIT, key .d removes the angle tag (Normal Mode and PEM) ; when editing short integers, key .d removes the base (Normal Mode and PEM) ; Shortcut : longerpress [←] ; alpha longer [←] ; PEM long [←] ; EIM longer [←] ; Info : editing of long integers is limited to two input lines (about 99 digits depening on display settings) ; also note that for new models and simulator, the full set of features is supported (Complex numbers not yet implemented), but for DM42 hardware, numbers cannot be edited	*User interface*		EDIT	
gF2	CASE	Command (PEM)	Case	Case statement, skips number of steps given by chosen variable (normally followed by number of GTO statements) ; TAM : CASE __ Tam menu	*Programming*		CASE	
gF3	RCL.SKP	Command (PEM)	Recall and skip	Recall value from register or variable and skip the next instruction (intended use is after a test function, which if true, calls RCL.SKP and jumps over the next program step, which means that step is executed only if the test function returns false) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Skipping_program_steps.pdf	*Programming*		RCL.SKP	
gF4								
gF5								
gF6	PFN.R	Command	P.FN menu reset	Reset all P.FN user assignments (and open menu) ; TI : P.FN menu reset to default	*Cleanup*			

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p1	P.FN3	Link
F1	LBL	
F2	GTO	
F3	XEQ	
F4	RTN	
F5	END	
F6	P.FN	https://47calc.com/doc/R47/Menus/R47v0_Menu_P-FN_page_1.pdf
fF1	SKIP	
fF2	BACK	
fF3	XEQ.SKP	
fF4	RTN.SKP	
fF5	LOOP	https://47calc.com/doc/R47/Menus/R47v0_Menu_LOOP_page_1.pdf
fF6	TEST	https://47calc.com/doc/R47/Menus/R47v0_Menu_TEST_page_1.pdf
gF1	EDIT	
gF2	CASE	
gF3	RCL.SKP	
gF4		
gF5		
gF6	PFN.R	

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Pareto:	Pareto distribution					
g-shift	STO_M μ	STO_S σ	STO_Q α			
f-shift	$Prto2_p$		$Prto2_{\triangle}$	$Prto2_{\triangle}$		$Prto2^{-1}$
unshifted	$Prto_p$		$Prto_{\triangle}$	$Prto_{\triangle}$		$Prto^{-1}$
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PLoads_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Pareto:	MENU	Pareto distribution	Pareto probability distribution (continuous) -- see https://en.wikipedia.org/wiki/Pareto_distribution#Pareto_types_I-IV ; TI : RegM = μ = ; RegS = σ = ; RegQ = α =	*Probability (real)*		Pareto:	
F1	$Prto_p$	Function (monadic)	Pareto type I pdf	Pareto type I probability density function	*Probability (real)*		$Prto_p$	
F2								
F3	$Prto_{◺}$	Function (monadic)	Pareto type I cdf (lower)	Pareto type I cumulative distribution (lower tail)	*Probability (real)*		$Prto_{◺}$	
F4	$Prto_{◹}$	Function (monadic)	Pareto type I cdf (upper)	Pareto type I cumulative distribution (upper tail)	*Probability (real)*		$Prto_{◹}$	
F5								
F6	$Prto^{-1}$	Function (monadic)	Pareto type I qf (inverse)	Pareto type I inverse cumulative distribution (quantile)	*Probability (real)*		$Prto^{-1}$	
fF1	$Prto2_p$	Function (monadic)	Pareto type II pdf	Pareto type II probability density function	*Probability (real)*		$Prto2_p$	
fF2								
fF3	$Prto2_{◺}$	Function (monadic)	Pareto type II cdf (lower)	Pareto type II cumulative distribution (lower tail)	*Probability (real)*		$Prto2_{◺}$	
fF4	$Prto2_{◹}$	Function (monadic)	Pareto type II cdf (upper)	Pareto type II cumulative distribution (upper tail)	*Probability (real)*		$Prto2_{◹}$	
fF5								
fF6	$Prto2^{-1}$	Function (monadic)	Pareto type II qf (inverse)	Pareto type II inverse cumulative distribution (quantile)	*Probability (real)*		$Prto2^{-1}$	
gF1	STO_M μ	Command	Store μ in M	Store parameter μ : location in register M ; Split screen : RegM = μ =	*Probability (real)*			
gF2	STO_S σ	Command	Store σ in S	Store parameter σ : scale in register S ; Split screen : RegS = σ =	*Probability (real)*			
gF3	STO_Q α	Command	Store α in Q	Store parameter α : shape in register Q ; Split screen : RegQ = α =	*Probability (real)*			
gF4								
gF5								
gF6								

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PLoads:	Pressure loads conversions					
g-shift	Struct:	PLoads:	FIX 0	SCI 0	ENG 0	UNIT 0
f-shift						
unshifted	Pa ←	→ lbf/ft^2	Pa ←	→ psi	·m	·k
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PLOT_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PLoads:	MENU	Pressure loads conversions	Convert between units of pressure loads ; typical loads presented as pressures ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Pressure conversions*		PLoads:	
F1	lbf/ft²→Pa (Pa ←)	Function (monadic, linked)	lbf/ft² to Pa	Convert pound force per square foot to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
F2	Pa→lbf/ft² (→ lbf/ft²)	Function (monadic, linked)	Pa to lbf/ft²	Convert Pascal to pound force per square foot ; TI : lbf/ft²:	*Pressure conversions*	$CONV_{HP}$		
F3	psi→Pa (Pa ←)	Function (monadic, linked)	psi to Pa	Convert pound force per square inch to Pascal ; TI : Pa:	*Pressure conversions*	$CONV_{HP}$		
F4	Pa→psi (→ psi)	Function (monadic, linked)	Pa to psi	Convert Pascal to pound force per square inch ; TI : psi:	*Pressure conversions*	$CONV_{HP}$		
F5	·m	Command (nonpgm)	milli	Factor 10^{-3}	*Numeric input*			
F6	·k	Command (nonpgm)	kilo	Factor 10^{3}	*Numeric input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*	$CONV_{HP}$	Struct:	
gF2	PLoads:	MENU	Pressure loads conversions	Convert between units of pressure loads ; typical loads presented as pressures ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Pressure conversions*		PLoads:	
gF3	FIX 0	Setting (pgm)	FIXed notation	Set numeric display mode to fixed notation with nn decimals (NDEC = nn = 0-19 ; DF = 1) ; TAM : FIX __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		FIX 0	OFF
gF4	SCI 0	Setting (pgm)	SCIentific notation	Set numeric display mode to scientific notation with nn decimals = nn+1 digits (NDEC = nn = 0-19 ; DF = 2) ; TAM : SCI __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		SCI 0	OFF
gF5	ENG 0	Setting (pgm)	ENGineering notation	Set numeric display mode to engineering notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 3) ; TAM : ENG __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		ENG 0	OFF
gF6	UNIT 0	Setting (pgm)	Unit (prefix) notation	Set numeric display mode to unit (prefix) notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 5) ; showing all or limited set of SI-prefixes depending on flag PFX.All ; if flag 1024^n is SET, binary prefixes are shown if available and long integer values are indicated by Z: ; prefixes can be selected directly from menu Prefix ; TAM : UNIT __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*	1024^n	UNIT 0	OFF

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p1	PLoads:	Link
F1	lbf/ft²→Pa (Pa ←)	
F2	Pa→lbf/ft² (→ lbf/ft²)	
F3	psi→Pa (Pa ←)	
F4	Pa→psi (→ psi)	
F5	·m	
F6	·k	
f F1		
f F2		
f F3		
f F4		
f F5		
f F6		
g F1	Struct:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Struct_page_1.pdf
g F2	PLoads:	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLoads_page_1.pdf
g F3	FIX ○	
g F4	SCI ○	
g F5	ENG ○	
g F6	UNIT ○	

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PLOT	Plotting					
g-shift	n	Σx^3	Σx^4	PLSTAT	HIST	REGR
f-shift	Σ-	Σx^{-1}	Σx^{-2}	Σy^{-1}	Σy^{-2}	Σxy^{-1}
unshifted	Σ+	Σx	Σx^2	Σy	Σy^2	Σxy
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PLOT_page_2.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PLOT	MENU	Plotting	Plotting and summation functions ; Info : When SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting and summation*		PLOT	
F1	Σ+	Command	Sigma+	Enter data into the statistics matrix (STATS) ; TI : nnn data point(s) ; Info : if a nx2 matrix is in X, Σ+ appends the data to the STATS matrix (creating it as necessary) ; Σ+ disables automatic stack lift for the next entry	*Summary statistics*		Σ+	
F2	Σx	Command	Summation of x	Summation of x using statistics matrix (STATS)	*Summation*		Σx	
F3	Σx^2	Command	Summation of x^2	Summation of x^2 using statistics matrix (STATS)	*Summation*		Σx^2	
F4	Σy	Command	Summation of y	Summation of y using statistics matrix (STATS)	*Summation*		Σy	
F5	Σy^2	Command	Summation of y^2	Summation of y^2 using statistics matrix (STATS)	*Summation*		Σy^2	
F6	Σxy	Command	Summation of xy	Summation of xy using statistics matrix (STATS)	*Summation*		Σxy	
fF1	Σ-	Command	Sigma-	Remove data from the statistics matrix (STATS) and put the values on the stack ; TI : nnn data points ; Info : Σ- pushes values onto the stack unless automatic stack lift is disabled, e.g. by Σ+	*Summary statistics*		Σ-	
fF2	Σx^{-1}	Command	Summation of x^{-1}	Summation of x^{-1} using statistics matrix (STATS)	*Summation*		Σx^{-1}	
fF3	Σx^{-2}	Command	Summation of x^{-2}	Summation of x^{-2} using statistics matrix (STATS)	*Summation*		Σx^{-2}	
fF4	Σy^{-1}	Command	Summation of y^{-1}	Summation of y^{-1} using statistics matrix (STATS)	*Summation*		Σy^{-1}	
fF5	Σy^{-2}	Command	Summation of y^{-2}	Summation of y^{-2} using statistics matrix (STATS)	*Summation*		Σy^{-2}	
fF6	Σxy^{-1}	Command	Summation of xy^{-1}	Summation of xy^{-1} using statistics matrix (STATS)	*Summation*		Σxy^{-1}	
gF1	n	Command	n	Number of samples	*Summary statistics*		nΣ	
gF2	Σx^3	Command	Summation of x^3	Summation of x^3 using statistics matrix (STATS)	*Summation*		Σx^3	
gF3	Σx^4	Command	Summation of x^4	Summation of x^4 using statistics matrix (STATS)	*Summation*		Σx^4	
gF4	PLSTAT	MENU (item)	Plot statistics	Plot statistics matrix (STATS, programmable) ; TI : Calculating graph coordinates ... may be shown when plotting the statistics matrix ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot (PLTFCNS also displays the plot options menu) ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; Ref : https://47calc.com/doc/Application%20Notes/AN0003_C47_JM_Graphing.pdf	*Plotting and statistics*		PLSTAT	
gF5	HIST	MENU	Histogram	Histogram functions	*Plotting and statistics*		HIST	
gF6	REGR	MENU	Regression	Regression functions	*Plotting and curve fitting*		REGR	

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p1	PLOT	Link
F1	Σ+	
F2	Σx	
F3	Σx^2	
F4	Σy	
F5	Σy^2	
F6	Σxy	
fF1	Σ-	
fF2	Σx^{-1}	
fF3	Σx^{-2}	
fF4	Σy^{-1}	
fF5	Σy^{-2}	
fF6	Σxy^{-1}	
gF1	n	
gF2	Σx^3	
gF3	Σx^4	
gF4	PLSTAT	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLSTAT_page_1.pdf
gF5	HIST	https://47calc.com/doc/R47/Menus/R47v0_Menu_HIST_page_1.pdf
gF6	REGR	https://47calc.com/doc/R47/Menus/R47v0_Menu_REGR_page_1.pdf

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PLOT	Plotting					
g-shift	n			$\Sigma x^{-1}\cdot\ln y$		CLΣ
f-shift	Σ-	$\Sigma y\cdot\ln x$	$\Sigma\ln x\cdot\ln y$	$\Sigma x\cdot\ln y$	$\Sigma x^2\cdot\ln y$	$\Sigma x^2 y^{-1}$
unshifted	Σ+	$\Sigma\ln x$	$\Sigma\ln^2 x$	$\Sigma\ln y$	$\Sigma\ln^2 y$	$\Sigma x^2 y$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PLOT	MENU	Plotting	Plotting and summation functions ; Info : When SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting and summation*		PLOT	
F1	Σ+	Command	Sigma+	Enter data into the statistics matrix (STATS) ; TI : nnn data point(s) ; Info : if a nx2 matrix is in X, Σ+ appends the data to the STATS matrix (creating it as necessary) ; Σ+ disables automatic stack lift for the next entry	*Summary statistics*		Σ+	
F2	Σlnx	Command	Summation of lnx	Summation of lnx using statistics matrix (STATS)	*Summation*		Σlnx	
F3	$\Sigma\ln^2x$	Command	Summation of $\ln^2x$	Summation of $\ln^2x$ using statistics matrix (STATS)	*Summation*		$\Sigma\ln^2x$	
F4	Σlny	Command	Summation of lny	Summation of lny using statistics matrix (STATS)	*Summation*		Σlny	
F5	$\Sigma\ln^2y$	Command	Summation of $\ln^2y$	Summation of $\ln^2y$ using statistics matrix (STATS)	*Summation*		$\Sigma\ln^2y$	
F6	Σx^2y	Command	Summation of x^2y	Summation of x^2y using statistics matrix (STATS)	*Summation*		Σx^2y	
fF1	Σ-	Command	Sigma-	Remove data from the statistics matrix (STATS) and put the values on the stack ; TI : nnn data points ; Info : Σ- pushes values onto the stack unless automatic stack lift is disabled, e.g. by Σ+	*Summary statistics*		Σ-	
fF2	Σy·lnx	Command	Summation of y·lnx	Summation of y·lnx using statistics matrix (STATS)	*Summation*		Σy·lnx	
fF3	Σlnx·lny	Command	Summation of lnx·lny	Summation of lnx·lny using statistics matrix (STATS)	*Summation*		Σlnx·lny	
fF4	Σx·lny	Command	Summation of x·lny	Summation of x·lny using statistics matrix (STATS)	*Summation*		Σx·lny	
fF5	$\Sigma x^2\cdot\ln y$	Command	Summation of $x^2\cdot\ln y$	Summation of $x^2\cdot\ln y$ using statistics matrix (STATS)	*Summation*		$\Sigma x^2\cdot\ln y$	
fF6	Σx^2y^{-1}	Command	Summation of x^2y^{-1}	Summation of x^2y^{-1} using statistics matrix (STATS)	*Summation*		Σx^2y^{-1}	
gF1	n	Command	n	Number of samples	*Summary statistics*		nΣ	
gF2								
gF3								
gF4	$\Sigma x^{-1}\cdot\ln y$	Command	Summation of $x^{-1}\cdot\ln y$	Summation of $x^{-1}\cdot\ln y$ using statistics matrix (STATS)	*Summation*		$\Sigma x^{-1}\cdot\ln y$	
gF5								
gF6	CLΣ	Command	Clear statistics	Clear all statistics data ; delete matrices HISTO and STATS	*Cleanup*		CLΣ	

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PLSTAT	Plot statistics					
g-shift	-ZOOM$_0$	+ZOOM$_0$				
f-shift	X:Y=1 ◻	PLTRST				
unshifted	X.AXIS ◻	Y.AXIS ◻				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PLSTAT	MENU (item)	Plot statistics	Plot statistics matrix (STATS, programmable) ; TI : Calculating graph coordinates ... may be shown when plotting the statistics matrix ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot (PLTFCNS also displays the plot options menu) ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; Ref : https://47calc.com/doc/Application%20Notes/AN0003_C47_JM_Graphing.pdf	*Plotting and statistics*		PLSTAT	
F1	X.AXIS ◻	Setting	Autoscaling to show x-axis	Switch on autoscaling to show x-axis ; not programmable - in PEM, use flag PLx.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLx.ax		OFF
F2	Y.AXIS ◻	Setting	Autoscaling to show y-axis	Switch on autoscaling to show y-axis ; not programmable - in PEM, use flag PLy.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLy.ax		OFF
F3								
F4								
F5								
F6								
fF1	X:Y=1 ◻	Setting	Forcing autoscale	Switch on forcing autoscale on x- and y-axis to be the same ; not programmable - in PEM, use flag PLxy:1	*Plotting*	PLxy:1		OFF
fF2	PLTRST	Command (PEM)	Reset plot	Reset all plot options and redraw graph ; Info : Resets options for lines, boxes, crosses, plusses and scaling ; PLTRST also resets ↓Y and ↑Y to zero	*Plotting*		PLTRST	
fF3								
fF4								
fF5								
fF6								
gF1	-ZOOM$_0$	Command	Zoom out on y-axis	Decrease zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; -ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF2	+ZOOM$_0$	Command	Zoom in on y-axis	Increase zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; +ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF3								
gF4								
gF5								
gF6								

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PLSTAT	Plot statistics					
g-shift	~~CURVE ◘~~	SNAP				
f-shift	LINE ◙	BOX ◙				
unshifted	CROSS ◘	PLUS ◘				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PLSTAT	MENU (item)	Plot statistics	Plot statistics matrix (STATS, programmable) ; TI : Calculating graph coordinates ... may be shown when plotting the statistics matrix ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot (PLTFCNS also displays the plot options menu) ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; Ref : https://47calc.com/doc/Application%20Notes/AN0003_C47_JM_Graphing.pdf	*Plotting and statistics*		PLSTAT	
F1	CROSS ◻	Setting	Cross markers	Switch on cross markers ; not programmable - in PEM, use flag PLcros ; Info : If CROSS is switched ON, BOX and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLcros		OFF
F2	PLUS ◻	Setting	Plus markers	Switch on plus markers ; not programmable - in PEM, use flag PLplus ; Info : If PLUS is switched ON, BOX and CROSS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLplus		OFF
F3								
F4								
F5								
F6								
fF1	LINE ◙	Setting	Draw line	Switch on connecting graph points using line segments ; not programmable - in PEM, use flag PLline ; Info : if LINE is switched OFF, BOX may be switched ON if necessary (when no curve markers are selected)	*Plotting*	PLline		ON
fF2	BOX ◙	Setting	Box markers	Switch on box markers ; not programmable - in PEM, use flag PLbox ; Info : If BOX is switched ON, CROSS and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLbox		ON
fF3								
fF4								
fF5								
fF6								
gF1	~~CURVE ◘~~	Setting (strike)	[future] Curve smoothing	Switch on [future] curve smoothing ; not programmable - in PEM, use flag PLcurve ; Info : Reserved for future use	*Plotting*	PLcurve		OFF
gF2	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
gF3								
gF4								
gF5								
gF6								

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PLSTAT	Plot statistics					
g-shift	N.VECT ◻	VECT ◻				
f-shift	RMS ◻	∫AREA ◻				
unshifted	Δy/Δx ◻	Σȳ∆x ◻				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	PLSTAT	MENU (item)	Plot statistics	Plot statistics matrix (STATS, programmable) ; TI : Calculating graph coordinates ... may be shown when plotting the statistics matrix ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot (PLTFCNS also displays the plot options menu) ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; Ref : https://47calc.com/doc/Application%20Notes/AN0003_C47_JM_Graphing.pdf	*Plotting and statistics*		PLSTAT	
F1	Δy/Δx ◻	Setting	Add differential curve	Switch on adding the graphical point-to-point differential of the main graph ; not programmable - in PEM, use flag PLdiff ; Info : Δ Numerical slope is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLdiff		OFF
F2	Σȳ∆x ◻	Setting	Add integral curve	Switch on adding the graphical integral curve, calculated from the point-to-point discrete integral ; not programmable - in PEM, use flag PLintg ; Info : Vertical placement of the integral is at RMS of the graph points ; ∫◻ Trapezoid integral is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLintg		OFF
F3								
F4								
F5								
F6								
fF1	RMS ◻	Setting	Add RMS curve	Switch on adding the graphical root mean square curve, accumulated from left to right ; not programmable - in PEM, use flag PLrms ; Info : ■ Root mean square RMS is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLrms		OFF
fF2	∫AREA ◻	Setting	Shade curve	Switch on shading the trapezoid integral from the graph points ; not programmable - in PEM, use flag PLshad ; Info : ∫◻ Trapezoid integral is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLshad		OFF
fF3								
fF4								
fF5								
fF6								
gF1	N.VECT ◻	Setting	Clockwise vectors	Switch on clockwise vectors ; not programmable - in PEM, use flag PLnvec ; Info : N.VECT and VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLnvec		OFF
gF2	VECT ◻	Setting	Anti-clockwise vectors	Switch on anti-clockwise vectors ; not programmable - in PEM, use flag PLvec ; Info : VECT and N.VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLvec		OFF
gF3								
gF4								
gF5								
gF6								

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PLTf (MVAR)	Plot (RPN)					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var...>			
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PLTf (MVAR)	MENU (item)	Plot (RPN)	Plot the RPN program (with MVAR variables) selected with TamLblOnly menu ; presents menu for variable selection ; in Program Entry Mode, the RPN program must be specified by PGMPLT and the variable to plot for using the TamVarOnly menu ; TAM : PLTf _ TamLblOnly menu (uses TamVarOnly menu in PEM, to specify variable to plot for) ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*RPN Calculus and plotting*		PLTf	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 as created by MVAR (in RPN program) (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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PLTFCNS (PLFUNC)	Plot functions					
g-shift	-ZOOM$_0$	+ZOOM$_0$				
f-shift	X:Y=1 ◻	PLTRST				
unshifted	↓X $_{-10}$	↑X $_{10}$				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PLTFCNS (PLFUNC)	MENU (item)	Plot functions	Plot functions (programmable), displaying graph, value/tick, lower left and upper right coordinate and additional info according to settings ; displays plot options menu ; Info : Please note that this item is in development -- Error 59 : Undefined menu name -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting*		PLTFCNS	
F1	↓X $_{-10}$	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↓X' :	*Plotting*		↓X	-10
F2	↑X $_{10}$	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↑X' :	*Plotting*		↑X	10
F3								
F4								
F5								
F6								
fF1	X:Y=1 ◻	Setting	Forcing autoscale	Switch on forcing autoscale on x- and y-axis to be the same ; not programmable - in PEM, use flag PLxy:1	*Plotting*	PLxy:1		OFF
fF2	PLTRST	Command (PEM)	Reset plot	Reset all plot options and redraw graph ; Info : Resets options for lines, boxes, crosses, plusses and scaling ; PLTRST also resets ↓Y and ↑Y to zero	*Plotting*		PLTRST	
fF3								
fF4								
fF5								
fF6								
gF1	-ZOOM$_0$	Command	Zoom out on y-axis	Decrease zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; -ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF2	+ZOOM$_0$	Command	Zoom in on y-axis	Increase zoom level on the y-axis (range -16 to +16) ; Info : <0 : zoom out ; 0 : normal ; >0 : zoom in ; +ZOOM resets ↑Y and ↑Y to zero	*Plotting*			0
gF3								
gF4								
gF5								
gF6								

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PLTFCNS (PLFUNC)	Plot functions					
g-shift	Graphs	SNAP				
f-shift	CXPLT ◻	IMPLT ◻				
unshifted	X.AXIS ◻	Y.AXIS ◻				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PLTFCNS (PLFUNC)	MENU (item)	Plot functions	Plot functions (programmable), displaying graph, value/tick, lower left and upper right coordinate and additional info according to settings ; displays plot options menu ; Info : Please note that this item is in development -- Error 59 : Undefined menu name -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting*		PLTFCNS	
F1	X.AXIS ◻	Setting	Autoscaling to show x-axis	Switch on autoscaling to show x-axis ; not programmable - in PEM, use flag PLx.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLx.ax		OFF
F2	Y.AXIS ◻	Setting	Autoscaling to show y-axis	Switch on autoscaling to show y-axis ; not programmable - in PEM, use flag PLy.ax ; Info : axis 0.0 or x-axis y=0 or y-axis x=0 is displayed	*Plotting*	PLy.ax		OFF
F3								
F4								
F5								
F6								
fF1	CXPLT ◻	Setting	Complex plot	Switch on Complex plot ; not programmable - in PEM, use flag PLcxp ; Info : CXPLT and IMPLT are linked (both cannot be ON at the same time	*Plotting*	PLcxp		OFF
fF2	IMPLT ◻	Setting	Plot imaginary part	Switch on plotting imaginary part ; not programmable - in PEM, use flag PLimp ; Info : IMPLT and CXPLT are linked (both cannot be ON at the same time	*Plotting*	PLimp		OFF
fF3								
fF4								
fF5								
fF6								
gF1	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
gF2	SNAP	Command	Screenshot	Save screenshot to backup file (.bmp) and save contents of stack or alpha buffer as backup file (.REGS.TSV) in FAT ; plays clicking sound ; Shortcut : [<f>] + [CHS] (DMCP-shortcut for screenshot bitmap only) ; longpress [EXIT] ; NIM long [EXIT] ; PEM longer [EXIT] ; Info : screenshot is saved in file SCREENS/<YYYYMMDD-HHMMSS00>.bmp ; SNAP also appends data to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; new datafile after timeout of 2 minutes	*Input-Output*		SNAP	
gF3								
gF4								
gF5								
gF6								

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p2	PLTFCNS (PLFUNC)	Link
F1	X.AXIS ◻	
F2	Y.AXIS ◻	
F3		
F4		
F5		
F6		
fF1	CXPLT ◻	
fF2	IMPLT ◻	
fF3		
fF4		
fF5		
fF6		
gF1	Graphs	https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf
gF2	SNAP	
gF3		
gF4		
gF5		
gF6		

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PLTFCNS (PLFUNC)	Plot functions					
g-shift	~~CURVE ◘~~	LISTXY				
f-shift	LINE ◙	BOX ◙				
unshifted	CROSS ◘	PLUS ◘				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	PLTFCNS (PLFUNC)	MENU (item)	Plot functions	Plot functions (programmable), displaying graph, value/tick, lower left and upper right coordinate and additional info according to settings ; displays plot options menu ; Info : Please note that this item is in development -- Error 59 : Undefined menu name -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting*		PLTFCNS	
F1	CROSS ◻	Setting	Cross markers	Switch on cross markers ; not programmable - in PEM, use flag PLcros ; Info : If CROSS is switched ON, BOX and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLcros		OFF
F2	PLUS ◻	Setting	Plus markers	Switch on plus markers ; not programmable - in PEM, use flag PLplus ; Info : If PLUS is switched ON, BOX and CROSS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLplus		OFF
F3								
F4								
F5								
F6								
fF1	LINE ◙	Setting	Draw line	Switch on connecting graph points using line segments ; not programmable - in PEM, use flag PLline ; Info : if LINE is switched OFF, BOX may be switched ON if necessary (when no curve markers are selected)	*Plotting*	PLline		ON
fF2	BOX ◙	Setting	Box markers	Switch on box markers ; not programmable - in PEM, use flag PLbox ; Info : If BOX is switched ON, CROSS and PLUS are switched OFF ; LINE is switched ON when all three curve markers are deselected	*Plotting*	PLbox		ON
fF3								
fF4								
fF5								
fF6								
gF1	~~CURVE ◘~~	Setting (strike)	[future] Curve smoothing	Switch on [future] curve smoothing ; not programmable - in PEM, use flag PLcurve ; Info : Reserved for future use	*Plotting*	PLcurve		OFF
gF2	LISTXY	Command	List graph coordinates	List the actual STATS graph coordinates (7 digit floating point)	*Plotting*			
gF3								
gF4								
gF5								
gF6								

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PLTFCNS (PLFUNC)	Plot functions					
g-shift	N.VECT ◻	VECT ◻				
f-shift	RMS ◻	∫AREA ◻				
unshifted	Δy/Δx ◻	Σȳ∆x ◻				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	PLTFCNS (PLFUNC)	MENU (item)	Plot functions	Plot functions (programmable), displaying graph, value/tick, lower left and upper right coordinate and additional info according to settings ; displays plot options menu ; Info : Please note that this item is in development -- Error 59 : Undefined menu name -- may be raised ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Plotting*		PLTFCNS	
F1	Δy/Δx ◻	Setting	Add differential curve	Switch on adding the graphical point-to-point differential of the main graph ; not programmable - in PEM, use flag PLdiff ; Info : Δ Numerical slope is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLdiff		OFF
F2	Σȳ∆x ◻	Setting	Add integral curve	Switch on adding the graphical integral curve, calculated from the point-to-point discrete integral ; not programmable - in PEM, use flag PLintg ; Info : Vertical placement of the integral is at RMS of the graph points ; ∫◻ Trapezoid integral is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLintg		OFF
F3								
F4								
F5								
F6								
fF1	RMS ◻	Setting	Add RMS curve	Switch on adding the graphical root mean square curve, accumulated from left to right ; not programmable - in PEM, use flag PLrms ; Info : ■ Root mean square RMS is displayed ; cannot be combined with N.VECT, VECT	*Plotting*	PLrms		OFF
fF2	∫AREA ◻	Setting	Shade curve	Switch on shading the trapezoid integral from the graph points ; not programmable - in PEM, use flag PLshad ; Info : ∫◻ Trapezoid integral is displayed ; switching ON ∫AREA also switches ON Δy/Δx ; switching OFF Δy/Δx also switches OFF ∫AREA ; cannot be combined with N.VECT, VECT	*Plotting*	PLshad		OFF
fF3								
fF4								
fF5								
fF6								
gF1	N.VECT ◻	Setting	Clockwise vectors	Switch on clockwise vectors ; not programmable - in PEM, use flag PLnvec ; Info : N.VECT and VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLnvec		OFF
gF2	VECT ◻	Setting	Anti-clockwise vectors	Switch on anti-clockwise vectors ; not programmable - in PEM, use flag PLvec ; Info : VECT and N.VECT are linked (both cannot be ON at the same time) ; cannot be combined with RMS, ∫AREA, Δy/Δx, Σȳ∆x	*Plotting*	PLvec		OFF
gF3								
gF4								
gF5								
gF6								

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Poiss:	Poisson distribution					
g-shift	STO$_R$ λ					
f-shift						
unshifted	Poiss$_p$		Poiss$_{\triangle}$	Poiss$_{\triangle}$		Poiss^{-1}
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Power_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Poiss:	MENU	Poisson distribution	Poisson probability distribution (discrete) -- see https://en.wikipedia.org/wiki/Poisson_distribution#Definitions ; TI : RegR = λ =	*Probability (int)*		Poiss:	
F1	$Poiss_p$	Function (monadic)	Poisson pmf	Poisson probability mass function	*Probability (int)*		$Poiss_p$	
F2								
F3	$Poiss_{\triangle}$	Function (monadic)	Poisson cdf (lower)	Poisson cumulative distribution (lower tail)	*Probability (int)*		$Poiss_{\triangle}$	
F4	$Poiss_{\triangle}$	Function (monadic)	Poisson cdf (upper)	Poisson cumulative distribution (upper tail)	*Probability (int)*		$Poiss_{\triangle}$	
F5								
F6	$Poiss^{-1}$	Function (monadic)	Poisson qf (inverse)	Poisson inverse cumulative distribution (quantile)	*Probability (int)*		$Poiss^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_R λ	Command	Store λ in R	Store parameter λ : rate parameter in register R ; Split screen : RegR = λ =	*Probability (real)*			
gF2								
gF3								
gF4								
gF5								
gF6								

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Power:	Power conversions					
g-shift						
f-shift						
unshifted	W ←	→ hp_E	W ←	→ hp_{UK}	W ←	→ hp_M
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PREF_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Power:	MENU	Power conversions	Convert between units of power ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Power conversions*		Power:	
F1	hp_E→W (W ←)	Function (monadic, linked)	hp_E to W	Convert electrical horsepower to Watt ; TI : W:	*Power conversions*	$CONV_{HP}$		
F2	W→hp_E (→ hp_E)	Function (monadic, linked)	W to hp_E	Convert Watt to electrical horsepower ; TI : hp_E:	*Power conversions*	$CONV_{HP}$		
F3	hp_{UK}→W (W ←)	Function (monadic, linked)	hp_{UK} to W	Convert UK horsepower to Watt ; TI : W:	*Power conversions*	$CONV_{HP}$		
F4	W→hp_{UK} (→ hp_{UK})	Function (monadic, linked)	W to hp_{UK}	Convert Watt to UK horsepower ; TI : hp_{UK}:	*Power conversions*	$CONV_{HP}$		
F5	hp_M→W (W ←)	Function (monadic, linked)	hp_M to W	Convert metric horsepower to Watt ; TI : W:	*Power conversions*	$CONV_{HP}$		
F6	W→hp_M (→ hp_M)	Function (monadic, linked)	W to hp_M	Convert Watt to metric horsepower ; TI : hp_M:	*Power conversions*	$CONV_{HP}$		
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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PREF	Preferences					
g-shift						
f-shift						
unshifted	DMCP	ActUSB	SDIGS$_{34}$	eRPN ⊡	RP$_{HP}$ ⊡	CFLG
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Ref 1 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PREF	MENU	Preferences	System preferences ; replaces MODE ; Info : PREF replaces C47 menu MODE ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*System*		PREF	
F1	DMCP	Command (HW)	Access DMCP menu	Access DMCP menu ; hardware only ; use EXIT to return without RESET -- see https://technical.swissmicros.com/dm42/doc/dm42_user_manual.html#dmcp_sys_menu ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMCP_menu.pdf	*System*		DMCP	
F2	ActUSB	Command (HW)	Activate USB disk	Activate USB disk without exiting to DMCP ; hardware only ; Info : Error 126 -- Not available on the simulator -- is raised when this command is performed on the simulator	*System*		ActUSB	
F3	SDIGS$_{34}$	Setting (pgm)	Set significant digits	Set the number of significant digits (1-34) for rounding after each operation ; sets tolerance of solvers, plotting and CONVG? ; value of 0 sets maximum precision (34) ; TAM : SDIGS __ TamNonReg menu ; Info : when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Mathematics*		SDIGS$_{34}$	34
F4	eRPN ◙	Setting	Entry RPN mode	Switch on interactive Entry RPN mode ; not programmable - in PEM, use flag eRPN ; Info : If eRPN is ON, in Numeric Input Mode, ENTER pushes the input value onto the stack, and if OFF, then it also duplicates X to Y ; without input or in Program Entry Mode, ENTER always duplicates X to Y ; only if eRPN is OFF, automatic stack lift is disabled after ENTER ; stack size SBI (8 or 4) is displayed in normal font if eRPN is ON and inverted if OFF ; SBI 8 or 4 is shown if flag SBss is ON ; SBI : 8 or 4	*Stack*	eRPN	eRPN ◙	ON
F5	RP$_{HP}$ ◙	Setting	Classic (HP) Rect/Polar	Switch on x : Re ; y : Im (RECT) ; r ; θ (POLAR) in X, Y ; not programmable - in PEM, use flag RP$_{HP}$; Info : RP$_{HP}$ OFF conforms to the way the R47v0 deals with complex numbers	*Complex and coordinates*	RP$_{HP}$	RP$_{HP}$ ◙	ON
F6	CFLG	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	PREF	Link
F1	DMCP	
F2	ActUSB	
F3	SDIGS34	
F4	eRPN ⊡	
F5	RPHP ⊡	
F6	CFLG	https://47calc.com/doc/R47/Menus/R47v0_Menu_CFLG_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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PREF	Preferences					
g-shift						
f-shift	i LI/R ⊙	i R ○	i ℂ ○	i LI ○		
unshifted	SSIZE4 ○	SSIZE8 ⊙	CPXRES ⊡	SPCRES ⊡	RMODE$_0$	CFLG
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PREF	MENU	Preferences	System preferences ; replaces MODE ; Info : PREF replaces C47 menu MODE ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*System*		PREF	
F1	SSIZE4 ○	Setting (pgm)	Stack size 4	Switch on 4 register stack ; Info : SBI 8 ; 4 is shown if flag SBss is SET ; SBI : 4	*Stack*	SSIZE8	SSIZE4 ○	OFF
F2	SSIZE8 ◉	Setting (pgm)	Stack Size 8	Switch on 8 register stack ; Info : SBI 8 ; 4 is shown if flag SBss is SET ; SBI : 8	*Stack*	SSIZE8	SSIZE8 ◉	ON
F3	CPXRES ▣	Setting	Complex results	Switch on Complex results ; not programmable - in PEM, use flag CPXRES ; Info : CPXRES is auto-set when entering complex input ; SBI ℂ ; ℝ is shown if flag SBcr is SET ; SBI : ℂ ; ℝ	*Complex numbers*	CPXRES	CPXRES ▣	ON
F4	SPCRES ▣	Setting	Special results	Switch on special results ; not programmable - in PEM, use flag SPCRES ; Info : Special results are: infinity (±∞) and not-a-number (NaN), an error will not occur for such values when SPCRES is SET ; also, ±0. may be used	*Mathematics*	SPCRES	SPCRES ▣	ON
F5	$RMODE_0$	Setting (pgm)	Set rounding mode	Set floating point rounding mode ; used for RSD and RDP ; also used when converting from the extended precision internal format to packed reals ; 0 : ½E = round half even ; 1 : ½↑ = round half up ; 2 : ½↓ = round half down ; 3 : ←0→ = round away from zero ; 4 : →0← = round towards zero ; 5 : ⌈x⌉ = ceiling ; 6 : ⌊x⌋ = floor ; TAM : RMODE _ TamNonReg menu ; Info : may be abbreviated as RM in status overviews	*Reals*		$RMODE_0$	0
F6	CFLG	MENU (item, nonpgm)	Configuration flags	Activate menu for setting system flags using FF (Flip flag) function ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*Flags*		SYS.FL	
fF1	i LI/R ◎	Setting (pgm)	Input Long integer/Real number	New numeric input is put on the stack as Long integer (0) or Real number (1.0-1.5) ; Info : Uses the decimal radix (default ".") to determine the numeric datatype	*Numeric input*		i LI/R ◎	ON
fF2	i ℝ ○	Setting (pgm)	input Real number	New numeric input is put on the stack as Real number (1.0-1.5)	*Numeric input*		i ℝ ○	OFF
fF3	i ℂ ○	Setting (pgm)	Input Complex number	New numeric input is put on the stack as Complex number (2.0-2.5)	*Numeric input*		i ℂ ○	OFF
fF4	i LI ○	Setting (pgm)	input Long integer	New numeric input is put on the stack as Long integer (0) and entry of the decimal radix is ignored ; Info : Switch on dZ.0 for displaying Long integers as Real ; not programmable - in PEM, use flag dZ.0	*Numeric input*		i LI ○	OFF
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p2	PREF	Link
F1	SSIZE4 ○	
F2	SSIZE8 ◎	
F3	CPXRES ⊡	
F4	SPCRES ⊡	
F5	RMODE0	
F6	CFLG	https://47calc.com/doc/R47/Menus/R47v0_Menu_CFLG_page_1.pdf
fF1	iLI/R ◎	
fF2	iR ○	
fF3	iC ○	
fF4	iLI ○	
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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PREF	Preferences					
g-shift	F.14 ○	F.124 ⊙	F.1234 ○	KEY.LP ⊡	MyM$_f^g$ □	HOME$_f^g$ ⊡
f-shift	M.14 ○	M.124 ○	M.1234 ⊙	MNUp1 ⊡	MyMb ⊡	HOMEb □
unshifted	SRESET	g.2Tp ⊡	SH.4s □	fg.GR □	fg.LIM □	fg.FUL ⊡
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0015_C47_R47_JM_Write_and_Read_Setting_Groups.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	PREF	MENU	Preferences	System preferences ; replaces MODE ; Info : PREF replaces C47 menu MODE ; Ref : https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf	*System*		PREF	
F1	SRESET	Command	Safe reset f/g timers	Safe reset, then toggle ON/OFF the timing related user interface options: fg.FUL ▣, g.2Tp ▣, SH.4s □, HOME$_f^g$ ▣	*User interface*		SRESET	
F2	g.2Tp ▣	Setting	Double tap function keys	Switch on double tap function keys for g-shift ; not programmable - in PEM, use flag g.2Tp ; Info : Blocked for navigation FN-keys (arrows) in editors	*User interface*	g.2Tp	g.2Tp ▣	ON
F3	SH.4s □	Setting	Shift time-out of 4s	Switch on shift time-out of 4s ; not programmable - in PEM, use flag SH.4s ; Info : For layouts containing key [f/g] only	*User interface*	SH.4s	SH.4s □	OFF
F4	fg.GR □	Setting (pgm)	Menu f,g-highlighting Grey	Switch on menu f,g-highlighting grey	*User interface*	fg.GR	fg.GR □	OFF
F5	fg.LIM □	Setting (pgm)	Menu f,g-highlighting Limited	Switch on menu f,g-highlighting limited ; Info : fg.LIM and fg.FUL are linked (both cannot be ON at the same time)	*User interface*	fg.LIM	fg.LIM □	OFF
F6	fg.FUL ▣	Setting (pgm)	Menu f,g-highlighting Full	Switch on menu f,g-highlighting full ; Info : fg.FUL and fg.LIM are linked (both cannot be ON at the same time)	*User interface*	fg.FUL	fg.FUL ▣	ON
fF1	M.14 ○	Setting (pgm)	Math keys skip f- and g-shift	Longpress control : Math keys skip f- and g-shift ; Info : 1. primaryNM : unshifted ; 4. longestpress : NOP ; Math keys are keys in row 2-4 except [<f>], [<g>], [EEX] and [←]	*User interface*			OFF
fF2	M.124 ○	Setting (pgm)	Math keys skip g-shift	Longpress control : Math keys skip g-shift ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 4. longestpress : NOP ; Math keys are keys in row 2-4 except [<f>], [<g>], [EEX] and [←]	*User interface*			OFF
fF3	M.1234 ◎	Setting (pgm)	Math keys do full cycle	Longpress control : Math keys do full cycle ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 3. longerpress : g-shift ; 4. longestpress : NOP ; Math keys are keys in row 2-4 except [<f>], [<g>], [EEX] and [←]	*User interface*			ON
fF4	MNUp1 ▣	Setting (pgm)	Menu opens on p1	Switch on menu opens on p1	*User interface*	MNUp1	MNUp1 ▣	ON
fF5	MyMb ▣	Setting	MyMenu shown	Switch on MyMenu shown ; not programmable - in PEM, use flag MyMb ; Info : MyMb and HOMEb are linked (both cannot be ON at the same time ; applies when all menus are exited using EXIT	*Customisation*	MyMb	MyMb ▣	ON
fF6	HOMEb □	Setting	HOME menu shown	Switch on HOME menu shown ; not programmable - in PEM, use flag HOMEb ; Info : HOMEb and MyMb are linked (both cannot be ON at the same time ; applies when all menus are exited using EXIT	*Customisation*	HOMEb	HOMEb □	OFF
gF1	F.14 ○	Setting (pgm)	Function keys skip f- and g-shift	Longpress control : Function keys skip f- and g-shift ; Info : 1. primaryNM : unshifted ; 4. longestpress : NOP	*User interface*			OFF
gF2	F.124 ◎	Setting (pgm)	Function keys skip g-shift	Longpress control : Function keys skip g-shift ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 4. longestpress : NOP	*User interface*			ON
gF3	F.1234 ○	Setting (pgm)	Function keys do full cycle	Longpress control : Function keys do full cycle ; Info : 1. primaryNM : unshifted ; 2. longpress : f-shift ; 3. longerpress : g-shift ; 4. longestpress : NOP	*User interface*			OFF
gF4	KEY.LP ▣	Setting	Longpress f and g shortcuts	Switch on longpress shortcuts for f-shift and g-shift keys ; not programmable - in PEM, use flag KEY.LP ; Info : KEY.LP pertains to R47v0 f g layout and R47v2 $_f^g$ g layout only and also enables longpress assignment to f-shift and g-shift keys	*User interface*	KEY.LP	KEY.LP ▣	ON
gF5	MyM$_f^g$ □	Setting	MyMenu f/g shortcut	Switch on MyMenu activated by triple and longerpress f/g-shift ; not programmable - in PEM, use flag MyM$_f^g$; Info : MyM$_f^g$ and HOME$_f^g$ are linked (both cannot be ON at the same time ; MyM$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	MyM$_f^g$	MyM$_f^g$ □	OFF
gF6	HOME$_f^g$ ▣	Setting	HOME menu f/g shortcut	Switch on HOME menu activated by triple and longerpress f/g-shift ; not programmable - in PEM, use flag HOME$_f^g$; Info : HOME$_f^g$ and MyM$_f^g$ are linked (both cannot be ON at the same time ; HOME$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	HOME$_f^g$	HOME$_f^g$ ▣	ON

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Prefix	Prefixes (UNIT)					
g-shift	·Ki	·Mi	·Gi	·Ti	·Pi	1024^n □
f-shift	·m	·µ	·n	·p	·f	DSP_3
unshifted	·k	·M	·G	·T	·P	FSE_{ALL}
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Prefix	MENU	Prefixes (UNIT)	Prefixes for UNIT mode	*Numeric input*		Prefix	
F1	·k	Command (nonpgm)	kilo	Factor 10^3	*Numeric input*			
F2	·M	Command (nonpgm)	Mega	Factor 10^6	*Numeric input*			
F3	·G	Command (nonpgm)	Giga	Factor 10^9	*Numeric input*			
F4	·T	Command (nonpgm)	Tera	Factor 10^{12}	*Numeric input*			
F5	·P	Command (nonpgm)	Peta	Factor 10^{15}	*Numeric input*			
F6	FSE_{ALL}	Setting (cyclic)	Fixed-Scientific-Engineering	Display mode cycling (FIX ; SCI ; ENG ; UNIT ; SIG ; ALL) ; Info : FSE_{FIX} ; FSE_{SCI} ; FSE_{ENG} ; FSE_{UNIT} ; FSE_{SIG} ; FSE_{ALL}	*Display*		FSE_{ALL}	ALL
fF1	·m	Command (nonpgm)	milli	Factor 10^{-3}	*Numeric input*			
fF2	·µ	Command (nonpgm)	micro	Factor 10^{-6}	*Numeric input*			
fF3	·n	Command (nonpgm)	nano	Factor 10^{-9}	*Numeric input*			
fF4	·p	Command (nonpgm)	pico	Factor 10^{-12}	*Numeric input*			
fF5	·f	Command (nonpgm)	femto	Factor 10^{-15}	*Numeric input*			
fF6	DSP_3	Setting (pgm)	Display precision	Set display mode precision (only) ; applies to FIX, SCI, ENG, UNIT, SIG, ALL ; TAM : DSP __ TamNonReg menu	*Display*		DSP_3	3
gF1	·Ki	Command (nonpgm)	Kilo binary	Factor 10^{10}	*Numeric input*			
gF2	·Mi	Command (nonpgm)	Mega binary	Factor 10^{20}	*Numeric input*			
gF3	·Gi	Command (nonpgm)	Giga binary	Factor 10^{30}	*Numeric input*			
gF4	·Ti	Command (nonpgm)	Tera binary	Factor 10^{40}	*Numeric input*			
gF5	·Pi	Command (nonpgm)	Peta binary	Factor 10^{50}	*Numeric input*			
gF6	1024^n ◻	Setting	Binary prefixes	Switch on binary prefixes in UNIT display mode ; not programmable - in PEM, use flag 1024^n ; Info : Binary prefixes designate powers of 1024, applicable to long integers (will be indicated by ℤ:) and reals in UNIT display mode	*Numeric input*	1024^n	1024^n ◻	OFF

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PRINT	Printing					
g-shift	🖶82240		MAN ⊙	NORM ○	TRACE ○	STRACE ○
f-shift	🖶ON ○	🖶OFF ⊙	🖶#		🖶CHAR	🖶LIST
unshifted	🖶ADV	🖶STK	🖶x	🖶r	🖶α	🖶PROG
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PRINT_page_2.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0021_C47_R47_DL_Printing.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PRINT	MENU	Printing	Printing functions ; Info : Printing is available for new models and simulator, but is currently available on DM42 hardware only in some packages ; Ref : https://47calc.com/doc/Application%20Notes/AN0021_C47_R47_DL_Printing.pdf	*Printing*		PRINT	
F1	🖶ADV	Command	Printer advance	Advance print paper, after printing the contents of the print buffer ; Info : SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶ADV	
F2	🖶STK	Command	Print stack	Print stack registers, labeled, in TZYX or DCBA TZYX order, depending on stack size set by SSIZE8 ; Info : If 🖶OFF, writes stack to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 ; 8 ; 4 is shown if flag SBprn is SET ; SBI : 🖶 ; 8 ; 4	*Printing*	SSIZE8	🖶STK	
F3	🖶x	Command	Print X	Print X register, marked with *** ; Info : If 🖶OFF, writes X to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶x	
F4	🖶r	Command	Print register or variable	Print single register or variable, labeled with the register or variable name ; TAM : 🖶r __ Tam menu ; Info : if 🖶OFF, writes register or variable to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶r	
F5	🖶α	Command	Print alpha	Print contents of register or variable as text ; Info : If 🖶OFF, 🖶α writes alpha to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶α	
F6	🖶PROG	Command (nonpgm)	Print program	Print program, with date and time printed at the top of the listing ; TAM : 🖶PROG _ TamLblOnly menu ; Info : If 🖶OFF, executes XPORTP ; [EXIT] or [R/S] can be pressed at any time to stop the listing ; in printer mode Trace, the program listing is printed in condensed form ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶PROG	
fF1	🖶ON ○	Setting (pgm)	Printing ON	Switch on printing and send commands to infrared print port ; Info : 🖶ON sets flag 🖶ACT (infrared print port active) and 🖶EN (printing enabled)	*Printing*	🖶ACT	🖶ON ○	OFF
fF2	🖶OFF ◉	Setting (pgm)	Printing OFF	Switch off printing and print to file (selected commands) ; Info : 🖶OFF clears flag 🖶ACT (infrared print port inactive) and 🖶EN (printing disabled) ; Error 63 -- Printing Is Disabled -- may be shown when executing a print command	*Printing*	🖶ACT	🖶OFF ◉	🖶OFF
fF3	🖶#	Command	Print byte	Print single byte (value 0-255), to be used as character or ESC sequence ; TAM : 🖶# ___ TamNonReg menu ; Info : SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶#	
fF4								
fF5	🖶CHAR	Command	Print character	Print single character from Unicode value specified in a register or variable ; TAM : 🖶CHAR ___ Tam menu ; Info : only characters in the R47 standard font are supported ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶CHAR	
fF6	🖶LIST	Command (nonpgm)	Print list	Print specified number of lines of current program ; TAM : 🖶LIST ____ TamNonReg menu ; Info : [EXIT] or [R/S] can be pressed at any time to stop the listing ; in printer mode Trace, the program listing is printed in condensed form ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶LIST	
gF1	🖶82240	MENU	Printer control	Printer control ; the menu button, e.g. on [PRINT.1] gF1 shows the default printer selected : 🖶82240 ; Info : Printing is available for new models and simulator, but is currently available on DM42 hardware only in some packages	*Printing*		🖶	82240
gF2								
gF3	MAN ◉	Setting (pgm)	Printer mode Manual	Switch on printer mode Manual (flag 🖶TRACE is CLEAR and flag 🖶NORM is CLEAR) ; Info : In MAN mode, the printer is idle and only prints when a print command is executed ; VIEW and AVIEW can also generate print output in this mode	*Printing*	🖶NORM	MAN ◉	ON
gF4	NORM ○	Setting (pgm)	Printer mode Normal	Switch on printer mode Normal (flag 🖶TRACE is CLEAR and flag 🖶NORM is SET) ; Info : In NORM mode, the printer prints numbers and alpha strings that are keyed in, names of functions executed from the keyboard and output from print functions ; running programs only print from print commands or from PROMPT	*Printing*	🖶NORM	NORM ○	OFF

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF5	TRACE ○	Setting (pgm)	Printer mode Trace	Switch on printer mode Trace (flag 🖶TRACE is SET and flag 🖶NORM is CLEAR) ; Info : In TRACE mode, the printer prints numbers and alpha strings that are keyed in, names of functions executed from the keyboard, intermediate and final results and output from print functions ; if a program is running, each step is printed as it executes ; in this mode, program listings are printed in condensed form	*Printing*	🖶TRACE	TRACE ○	OFF
gF6	STRACE ○	Setting (pgm)	Printer mode Stack trace	Switch on printer mode Stack trace (flag 🖶TRACE is SET and flag 🖶NORM is SET) ; Info : In STRACE mode, the printer prints the stack and alpha strings that are keyed in, names of functions executed from the keyboard, intermediate and final results and output from print functions ; if a program is running, each step is printed as it executes ; in this mode, program listings are printed in condensed form	*Printing*	🖶TRACE	STRACE ○	OFF

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p1	PRINT	Link
F1	🖶ADV	
F2	🖶STK	
F3	🖶x	
F4	🖶r	
F5	🖶α	
F6	🖶PROG	
fF1	🖶ON ○	
fF2	🖶OFF ◉	
fF3	🖶#	
fF4		
fF5	🖶CHAR	
fF6	🖶LIST	
gF1	🖶82240	https://47calc.com/doc/R47/Menus/R47v0_Menu_Printer_page_1.pdf
gF2		
gF3	MAN ◉	
gF4	NORM ○	
gF5	TRACE ○	
gF6	STRACE ○	

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PRINT	Printing					
g-shift	🖶82240	🖶ITEMS	MAN ⊙	NORM ○	TRACE ○	STRACE ○
f-shift	🖶ON ○	🖶OFF ⊙	~~🖶XFN~~	🖶ALLr	~~🖶WIDTH~~	~~🖶LCD~~
unshifted	🖶ADV	🖶Σ	🖶xy	🖶REGS	🖶TAB	🖶USER
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PROB_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0021_C47_R47_DL_Printing.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PRINT	MENU	Printing	Printing functions ; Info : Printing is available for new models and simulator, but is currently available on DM42 hardware only in some packages ; Ref : https://47calc.com/doc/Application%20Notes/AN0021_C47_R47_DL_Printing.pdf	*Printing*		PRINT	
F1	🖶ADV	Command	Printer advance	Advance print paper, after printing the contents of the print buffer ; Info : SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶ADV	
F2	🖶Σ	Command	Print summation registers	Print summation registers, labeled ; Info : SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶Σ	
F3	🖶xy	Command	Print X and Y	Print X and Y registers on the same line, X on the left, Y on the right ; a 2xn or nx2 matrix is printed in two columns ; maximum 11 characters per column including number sign and separator(s) ; this is very limited for Complex numbers ; Info : If 🖶OFF, writes X and Y to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶xy	
F4	🖶REGS	Command	Print registers	Print registers, using range number in X (sss.nn means registers from sss through sss + nn - 1) ; Info : [EXIT] or [R/S] can be pressed at any time to stop the listing ; If 🖶OFF, writes registers to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶REGS	
F5	🖶TAB	Command	Print column	Position print head to print column nnn (HP-82240 : 1-166 columns, Martel : 1-384 columns) ; TAM : 🖶TAB ___ Tam menu ; Info : SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶TAB	
F6	🖶USER	Command	Print user items	Print user items : variable names and values and a list of global program labels and program numbers ; Info : [EXIT] or [R/S] can be pressed at any time to stop the listing ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶USER	
fF1	🖶ON ○	Setting (pgm)	Printing ON	Switch on printing and send commands to infrared print port ; Info : 🖶ON sets flag 🖶ACT (infrared print port active) and 🖶EN (printing enabled)	*Printing*	🖶ACT	🖶ON ○	OFF
fF2	🖶OFF ⊗	Setting (pgm)	Printing OFF	Switch off printing and print to file (selected commands) ; Info : 🖶OFF clears flag 🖶ACT (infrared print port inactive) and 🖶EN (printing disabled) ; Error 63 -- Printing Is Disabled -- may be shown when executing a print command	*Printing*	🖶ACT	🖶OFF ⊗	🖶OFF
fF3	~~🖶XFN~~	Command (strike)	Print XFN	Print all digits of X × Y + Z for Virtual compound data type (0/1.0-1.5 ; 0/1.0 ; 0/1.0), used in extended accuracy functions (menu XFCNS) ; Info : If 🖶OFF, writes XFN to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		~~🖶XFN~~	
fF4	🖶ALLr	Command	Print all registers	Print all registers, labeled ; prints a listing of all global and currently allocated local registers (if any) ; Info : [EXIT] or [R/S] can be pressed at any time to stop the listing ; If 🖶OFF, writes all registers to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		🖶ALLr	
fF5	~~🖶WIDTH~~	Command (strike)	Printer width	Number of columns used to print a string specified in a register or variable ; Info : The number of columns returned depends on the printer type selected and (possibly) on 🖶MODE ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		~~🖶WIDTH~~	
fF6	~~🖶LCD~~	Command (strike)	Print LCD	Print LCD display ; on the Martel, the full LCD can be printed, but on the 82240 this has not been implemented yet ; note that printing graphics is slow ; Info : If 🖶OFF, 🖶LCD works like SNAP : writes LCD screenshot to file SCREENS/<YYYYMMDD-HHMMSS00>.bmp and writes stack to file DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*		~~🖶LCD~~	
gF1	🖶82240	MENU	Printer control	Printer control ; the menu button, e.g. on [PRINT.1] gF1 shows the default printer selected : 🖶82240 ; Info : Printing is available for new models and simulator, but is currently available on DM42 hardware only in some packages	*Printing*		🖶	82240
gF2	🖶ITEMS	Command (SIM)	Print all items	Print all items (for testing purposes on simulator only, not available on hardware) ; Info : [EXIT] or [R/S] can be pressed at any time to stop the listing ; If 🖶OFF, writes all items to file in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; SBI 🖶 is shown if flag SBprn is SET ; SBI : 🖶	*Printing*			

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF3	MAN ⊙	Setting (pgm)	Printer mode Manual	Switch on printer mode Manual (flag 🖶TRACE is CLEAR and flag 🖶NORM is CLEAR) ; Info : In MAN mode, the printer is idle and only prints when a print command is executed ; VIEW and AVIEW can also generate print output in this mode	*Printing*	🖶NORM	MAN ⊙	ON
gF4	NORM ○	Setting (pgm)	Printer mode Normal	Switch on printer mode Normal (flag 🖶TRACE is CLEAR and flag 🖶NORM is SET) ; Info : In NORM mode, the printer prints numbers and alpha strings that are keyed in, names of functions executed from the keyboard and output from print functions ; running programs only print from print commands or from PROMPT	*Printing*	🖶NORM	NORM ○	OFF
gF5	TRACE ○	Setting (pgm)	Printer mode Trace	Switch on printer mode Trace (flag 🖶TRACE is SET and flag 🖶NORM is CLEAR) ; Info : In TRACE mode, the printer prints numbers and alpha strings that are keyed in, names of functions executed from the keyboard, intermediate and final results and output from print functions ; if a program is running, each step is printed as it executes ; in this mode, program listings are printed in condensed form	*Printing*	🖶TRACE	TRACE ○	OFF
gF6	STRACE ○	Setting (pgm)	Printer mode Stack trace	Switch on printer mode Stack trace (flag 🖶TRACE is SET and flag 🖶NORM is SET) ; Info : In STRACE mode, the printer prints the stack and alpha strings that are keyed in, names of functions executed from the keyboard, intermediate and final results and output from print functions ; if a program is running, each step is printed as it executes ; in this mode, program listings are printed in condensed form	*Printing*	🖶TRACE	STRACE ○	OFF

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p2	PRINT	Link
F1	🖶ADV	
F2	🖶Σ	
F3	🖶xy	
F4	🖶REGS	
F5	🖶TAB	
F6	🖶USER	
fF1	🖶ON ○	
fF2	🖶OFF ◉	
fF3	~~🖶XFN~~	
fF4	🖶ALLr	
fF5	~~🖶WIDTH~~	
fF6	~~🖶LCD~~	
gF1	🖶82240	https://47calc.com/doc/R47/Menus/R47v0_Menu_Printer_page_1.pdf
gF2	🖶ITEMS	
gF3	MAN ◉	
gF4	NORM ○	
gF5	TRACE ○	
gF6	STRACE ○	

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🖶	Printer control					
g-shift						
f-shift						
unshifted	82240 ⊙	Martel ○			~~🖶MODE~~	🖶DLAY$_{18}$
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_NRMKEY_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	🖶	MENU	Printer control	Printer control ; the menu button, e.g. on [PRINT.1] gF1 shows the default printer selected : 🖶$_{82240}$; Info : Printing is available for new models and simulator, but is currently available on DM42 hardware only in some packages	*Printing*		🖶	
F1	82240 ◉	Setting	HP-82240 printer	Set the printer type to HP-82240 ; Info : Select this option for the HP-82240A or HP-82240B, or any printer compatible with the HP-82240	*Printing*		82240 ◉	ON
F2	Martel ○	Setting	Martel printer	Set the printer type to Martel ; Info : The Martel printer supporting the HPIR interface may show some slight variations in character size or text position, in comparison to the 82240	*Printing*		Martel ○	OFF
F3								
F4								
F5	~~🖶MODE~~	Setting (pgm, strike)	Printer mode	Set printer mode ; TAM : 🖶MODE _ Tam menu ; Info : only mode 0 is implemented for the time being	*Printing*		~~🖶MODE~~	0
F6	🖶DLAY$_{18}$	Setting (pgm)	Set printer delay	Set printer delay time between lines ; TAM : 🖶DLAY __ Tam menu ; Info : Set printer delay default (18) is set by DMCP ; on the simulator, the default is 0	*Printing*		🖶DLAY$_{18}$	18
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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PROB	Probability					
g-shift						
f-shift	SEED					
unshifted	RAN#	RANI#	C_{yx}	P_{yx}	x!	DISTR
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PROG_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PROB	MENU	Probability	Probability functions	*Probability*		PROB	
F1	RAN#	Command	Random number	Pseudo random number generator (type Real) with bounds 0 and 1 ; uses the SEED ; Info : Range is [0, 1) -- left closed, right open interval	*Probability*		RAN#	
F2	RANI#	Function (dyadic)	Random Long integer or Real	Pseudo random Long integer or Real number generator with bounds X and Y ; uses the SEED ; Info : Result is Long integer and range is [X, Y] when X and Y are Long integer ; result is Real and range is [X, Y) when X or Y are Real ; bounds may be entered in either order	*Probability*		RANI#	
F3	C_{yx}	Function (dyadic)	Combinations	Combinations of X out of Y	*Trigonometry*		COMB	
F4	P_{yx}	Function (dyadic)	Permutations	Permutations of X out of Y	*Probability*		PERM	
F5	x!	Function (monadic)	Factorial x! or Γ(x+1)	For Long integers : x! ; for Reals : Γ(x+1) ; Info : Max integer: 450 (up to 1000 digits accurate) ; max real : 2123.549 956 662 463 236 31 ; integers > max are converted to reals	*Mathematics*		x!	
F6	DISTR	MENU	Distributions	Probability distribution functions ; Split screen : Displaying <register> = <parameter> = <value> for the probability distribution submenus ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Distr_param.pdf	*Probability*		DISTR	
fF1	SEED	Command	Seed	Set seed for the pseudo random number generators RAN# and RANI# ; Info : If X = 0, then SEED will use a combination of available memory and current time to create a random-like new seed ; for any other (numeric) input the resulting pseudo random sequence will be repeatable	*Probability*		SEED	
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	PROB	Link
F1	RAN#	
F2	RANI#	
F3	C_{yx}	
F4	P_{yx}	
F5	x!	
F6	DISTR	https://47calc.com/doc/R47/Menus/R47v0_Menu_DISTR_page_1.pdf
fF1	SEED	
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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PROG (PROGS)	TAM (program)					
g-shift	Len5	Len6	Len7	Len8	LISSAJ	OMp209
f-shift	IBessI	IBessP	IntP	Len2	Len3	Len4
unshifted	AllOps	Bairsto	ECA	FreeF	FreeFp	FreFp2
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PROG (PROGS)	MENU (TAM, ASM)	TAM (program)	Presented in TAM menus for commands accessing global or local named labels ; TAM : CAT.PROGS.* menu ; Info : Type characters 1-2 to search ; open menu PROG e.g. from button : on [TamLabel.1]F3 to activate menu TamLocalLabel, then menu PROG, to find local labels (if in scope)	*Trailing input*		PROG	
F1	AllOps	User Program	AllOps	AllOps test program, available to load from PROGRAMS/ALLPGMS/AllOps.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F2	Bairsto	User Program	Bairsto	Bairsto test program, available to load from PROGRAMS/ALLPGMS/Bairsto.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F3	ECA	User Program	ECA	ECA test program, available to load from PROGRAMS/ALLPGMS/ECA.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F4	FreeF	User Program	FreeF	FreeF test program, available to load from PROGRAMS/ALLPGMS/FreeF.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F5	FreeFp	User Program	FreeFp	FreeFp test program, available to load from PROGRAMS/ALLPGMS/FreeFp.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F6	FreFp2	User Program	FreFp2	FreFp2 test program, available to load from PROGRAMS/ALLPGMS/FreFp2.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF1	IBessI	User Program	IBessI	IBessI test program, available to load from PROGRAMS/ALLPGMS/IBessI.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF2	IBessP	User Program	IBessP	IBessP test program, available to load from PROGRAMS/ALLPGMS/IBessP.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF3	IntP	User Program	IntP	IntP test program, available to load from PROGRAMS/ALLPGMS/IntP.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF4	Len2	User Program	Len2	Len2 test program, available to load from PROGRAMS/ALLPGMS/Len2.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF5	Len3	User Program	Len3	Len3 test program, available to load from PROGRAMS/ALLPGMS/Len3.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF6	Len4	User Program	Len4	Len4 test program, available to load from PROGRAMS/ALLPGMS/Len4.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF1	Len5	User Program	Len5	Len5 test program, available to load from PROGRAMS/ALLPGMS/Len5.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF2	Len6	User Program	Len6	Len6 test program, available to load from PROGRAMS/ALLPGMS/Len6.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF3	Len7	User Program	Len7	Len7 test program, available to load from PROGRAMS/ALLPGMS/Len7.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF4	Len8	User Program	Len8	Len8 test program, available to load from PROGRAMS/ALLPGMS/Len8.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF5	LISSAJ	User Program	LISSAJ	LISSAJ test program, available to load from PROGRAMS/ALLPGMS/LISSAJ.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF6	OMp209	User Program	OMp209	OMp209 test program, available to load from PROGRAMS/ALLPGMS/OMp209.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			

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PROG (PROGS)	TAM (program)					
g-shift	Speed	SPIRAL	STAT000	STAT001	STAT002	STAT111
f-shift	PICTURE	Prime	PROD	ReMp261	SlvCnst	SlvExtr
unshifted	OMp212	OMp224	OMp226	OMp233	OMp235	OMp237
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_PROG_page_3.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PROG (PROGS)	MENU (TAM, ASM)	TAM (program)	Presented in TAM menus for commands accessing global or local named labels ; TAM : CAT.PROGS.* menu ; Info : Type characters 1-2 to search ; open menu PROG e.g. from button : on [TamLabel.1] F3 to activate menu TamLocalLabel, then menu PROG, to find local labels (if in scope)	*Trailing input*		PROG	
F1	OMp212	User Program	OMp212	OMp212 test program, available to load from PROGRAMS/ALLPGMS/OMp212.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F2	OMp224	User Program	OMp224	OMp224 test program, available to load from PROGRAMS/ALLPGMS/OMp224.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F3	OMp226	User Program	OMp226	OMp226 test program, available to load from PROGRAMS/ALLPGMS/OMp226.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F4	OMp233	User Program	OMp233	OMp233 test program, available to load from PROGRAMS/ALLPGMS/OMp233.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F5	OMp235	User Program	OMp235	OMp235 test program, available to load from PROGRAMS/ALLPGMS/OMp235.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F6	OMp237	User Program	OMp237	OMp237 test program, available to load from PROGRAMS/ALLPGMS/OMp237.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF1	PICTURE	User Program	PICTURE	PICTURE test program, available to load from PROGRAMS/ALLPGMS/PICTURE.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF2	Prime	User Program	Prime	Prime test program, available to load from PROGRAMS/ALLPGMS/Prime.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF3	PROD	User Program	PROD	PROD test program, available to load from PROGRAMS/ALLPGMS/PROD.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF4	ReMp261	User Program	ReMp261	ReMp261 test program, available to load from PROGRAMS/ALLPGMS/ReMp261.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF5	SlvCnst	User Program	SlvCnst	SlvCnst test program, available to load from PROGRAMS/ALLPGMS/SlvCnst.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF6	SlvExtr	User Program	SlvExtr	SlvExtr test program, available to load from PROGRAMS/ALLPGMS/SlvExtr.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF1	Speed	User Program	Speed	Speed test program, available to load from PROGRAMS/ALLPGMS/Speed.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF2	SPIRAL	User Program	SPIRAL	SPIRAL test program, available to load from PROGRAMS/ALLPGMS/SPIRAL.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF3	STAT000	User Program	STAT000	STAT000 test program, available to load from PROGRAMS/ALLPGMS/STAT000.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF4	STAT001	User Program	STAT001	STAT001 test program, available to load from PROGRAMS/ALLPGMS/STAT001.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF5	STAT002	User Program	STAT002	STAT002 test program, available to load from PROGRAMS/ALLPGMS/STAT002.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF6	STAT111	User Program	STAT111	STAT111 test program, available to load from PROGRAMS/ALLPGMS/STAT111.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			

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PROG (PROGS)	TAM (program)					
g-shift						
f-shift						
unshifted	STAT113	STAT115	STATgr	ΣV		
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	PROG (PROGS)	MENU (TAM, ASM)	TAM (program)	Presented in TAM menus for commands accessing global or local named labels ; TAM : CAT.PROGS.* menu ; Info : Type characters 1-2 to search ; open menu PROG e.g. from button : on [TamLabel.1]F3 to activate menu TamLocalLabel, then menu PROG, to find local labels (if in scope)	*Trailing input*		PROG	
F1	STAT113	User Program	STAT113	STAT113 test program, available to load from PROGRAMS/ALLPGMS/STAT113.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F2	STAT115	User Program	STAT115	STAT115 test program, available to load from PROGRAMS/ALLPGMS/STAT115.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F3	STATgr	User Program	STATgr	STATgr test program, available to load from PROGRAMS/ALLPGMS/STATgr.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F4	ΣV	User Program	ΣV	ΣV test program, available to load from PROGRAMS/ALLPGMS/SigmaV.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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PROGS	Programs					
g-shift	Len5	Len6	Len7	Len8	LISSAJ	OMp209
f-shift	IBessI	IBessP	IntP	Len2	Len3	Len4
unshifted	AllOps	Bairsto	ECA	FreeF	FreeFp	FreFp2
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	PROGS	MENU (ASM)	Programs	Auto-generated catalog of programs	*Catalog*		PROGS	
F1	AllOps	User Program	AllOps	AllOps test program, available to load from PROGRAMS/ALLPGMS/AllOps.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F2	Bairsto	User Program	Bairsto	Bairsto test program, available to load from PROGRAMS/ALLPGMS/Bairsto.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F3	ECA	User Program	ECA	ECA test program, available to load from PROGRAMS/ALLPGMS/ECA.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F4	FreeF	User Program	FreeF	FreeF test program, available to load from PROGRAMS/ALLPGMS/FreeF.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F5	FreeFp	User Program	FreeFp	FreeFp test program, available to load from PROGRAMS/ALLPGMS/FreeFp.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F6	FreFp2	User Program	FreFp2	FreFp2 test program, available to load from PROGRAMS/ALLPGMS/FreFp2.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF1	IBessI	User Program	IBessI	IBessI test program, available to load from PROGRAMS/ALLPGMS/IBessI.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF2	IBessP	User Program	IBessP	IBessP test program, available to load from PROGRAMS/ALLPGMS/IBessP.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF3	IntP	User Program	IntP	IntP test program, available to load from PROGRAMS/ALLPGMS/IntP.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF4	Len2	User Program	Len2	Len2 test program, available to load from PROGRAMS/ALLPGMS/Len2.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF5	Len3	User Program	Len3	Len3 test program, available to load from PROGRAMS/ALLPGMS/Len3.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF6	Len4	User Program	Len4	Len4 test program, available to load from PROGRAMS/ALLPGMS/Len4.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF1	Len5	User Program	Len5	Len5 test program, available to load from PROGRAMS/ALLPGMS/Len5.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF2	Len6	User Program	Len6	Len6 test program, available to load from PROGRAMS/ALLPGMS/Len6.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF3	Len7	User Program	Len7	Len7 test program, available to load from PROGRAMS/ALLPGMS/Len7.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF4	Len8	User Program	Len8	Len8 test program, available to load from PROGRAMS/ALLPGMS/Len8.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF5	LISSAJ	User Program	LISSAJ	LISSAJ test program, available to load from PROGRAMS/ALLPGMS/LISSAJ.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF6	OMp209	User Program	OMp209	OMp209 test program, available to load from PROGRAMS/ALLPGMS/OMp209.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			

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PROGS	Programs					
g-shift	Speed	SPIRAL	STAT000	STAT001	STAT002	STAT111
f-shift	PICTURE	Prime	PROD	ReMp261	SlvCnst	SlvExtr
unshifted	OMp212	OMp224	OMp226	OMp233	OMp235	OMp237
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	PROGS	MENU (ASM)	Programs	Auto-generated catalog of programs	*Catalog*		PROGS	
F1	OMp212	User Program	OMp212	OMp212 test program, available to load from PROGRAMS/ALLPGMS/OMp212.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F2	OMp224	User Program	OMp224	OMp224 test program, available to load from PROGRAMS/ALLPGMS/OMp224.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F3	OMp226	User Program	OMp226	OMp226 test program, available to load from PROGRAMS/ALLPGMS/OMp226.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F4	OMp233	User Program	OMp233	OMp233 test program, available to load from PROGRAMS/ALLPGMS/OMp233.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F5	OMp235	User Program	OMp235	OMp235 test program, available to load from PROGRAMS/ALLPGMS/OMp235.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F6	OMp237	User Program	OMp237	OMp237 test program, available to load from PROGRAMS/ALLPGMS/OMp237.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF1	PICTURE	User Program	PICTURE	PICTURE test program, available to load from PROGRAMS/ALLPGMS/PICTURE.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF2	Prime	User Program	Prime	Prime test program, available to load from PROGRAMS/ALLPGMS/Prime.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF3	PROD	User Program	PROD	PROD test program, available to load from PROGRAMS/ALLPGMS/PROD.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF4	ReMp261	User Program	ReMp261	ReMp261 test program, available to load from PROGRAMS/ALLPGMS/ReMp261.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF5	SlvCnst	User Program	SlvCnst	SlvCnst test program, available to load from PROGRAMS/ALLPGMS/SlvCnst.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
fF6	SlvExtr	User Program	SlvExtr	SlvExtr test program, available to load from PROGRAMS/ALLPGMS/SlvExtr.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF1	Speed	User Program	Speed	Speed test program, available to load from PROGRAMS/ALLPGMS/Speed.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF2	SPIRAL	User Program	SPIRAL	SPIRAL test program, available to load from PROGRAMS/ALLPGMS/SPIRAL.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF3	STAT000	User Program	STAT000	STAT000 test program, available to load from PROGRAMS/ALLPGMS/STAT000.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF4	STAT001	User Program	STAT001	STAT001 test program, available to load from PROGRAMS/ALLPGMS/STAT001.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF5	STAT002	User Program	STAT002	STAT002 test program, available to load from PROGRAMS/ALLPGMS/STAT002.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
gF6	STAT111	User Program	STAT111	STAT111 test program, available to load from PROGRAMS/ALLPGMS/STAT111.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			

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PROGS	Programs					
g-shift						
f-shift						
unshifted	STAT113	STAT115	STATgr	ΣV		
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	PROGS	MENU (ASM)	Programs	Auto-generated catalog of programs	*Catalog*		PROGS	
F1	STAT113	User Program	STAT113	STAT113 test program, available to load from PROGRAMS/ALLPGMS/STAT113.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F2	STAT115	User Program	STAT115	STAT115 test program, available to load from PROGRAMS/ALLPGMS/STAT115.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F3	STATgr	User Program	STATgr	STATgr test program, available to load from PROGRAMS/ALLPGMS/STATgr.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F4	ΣV	User Program	ΣV	ΣV test program, available to load from PROGRAMS/ALLPGMS/SigmaV.p47, using READP (after unzipping resources/testPgms.zip)	*Test programs*			
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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RADIX	Select radix					
g-shift						
f-shift						
unshifted	PER. ⊙	COM, ○	DOT· ○	WPER. ○	WCOM, ○	WDOT • ○
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	RADIX	MENU	Select radix	Select radix	*Display*		RADIX	
F1	PER. ⊙	Setting (pgm)	Radix period	Radix decimal period	*Display*		RPER. ⊙	ON
F2	COM, ○	Setting (pgm)	Radix comma	Radix decimal comma	*Display*		RCOM, ○	OFF
F3	DOT· ○	Setting (pgm)	Radix dot	Radix decimal dot	*Display*		RDOT· ○	OFF
F4	WPER. ○	Setting (pgm)	Radix wide period	Radix decimal wide period	*Display*		RWPER. ○	OFF
F5	WCOM, ○	Setting (pgm)	Radix wide comma	Radix decimal wide comma ; ▯ :	*Display*		RWCOM, ○	OFF
F6	WDOT • ○	Setting (pgm)	Radix wide dot	Radix decimal wide dot	*Display*		RWDOT • ○	OFF
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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REAL	Real					
g-shift	floor	ceil	|x|	↯	Re	Im
f-shift	SDL	SDR	ROUND	ROUNDI	RDP	RSD
unshifted	IP	FP	MANT	EXPT	sign	DECOMP
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	REAL	MENU	Real	Functions on ℝeal numbers and ℂomplex numbers	*Reals*		REAL	
F1	IP	Function (monadic)	Integer Part	Integer Part of number (returns ℝeal number) ; Shortcut : #TAM [R↓] (I) for closed number	*Fractions*		IP	
F2	FP	Function (monadic)	Fractional Part	Fractional Part of real number ; Shortcut : #TAM [LN] (F) for closed number	*Fractions*		FP	
F3	MANT	Function (monadic)	Mantissa	Mantissa of real number	*Reals*		MANT	
F4	EXPT	Function (monadic)	Exponent	Exponent of real number	*Reals*		EXPT	
F5	sign	Function (monadic)	Sign	Sign of number ; Info : Sign is -1 for negative numbers, 0 for zero, +1 for positive numbers ; for nonzero ℂomplex numbers, sign(z) = z / |z| (a.k.a. UNITV)	*Reals*		sign	
F6	DECOMP	Function (monadic)	Decompose	Convert (improper) real number fraction in X to nominator in Y, denominator in X ; Info : Honours settings DENANY, DENFIX and DMX	*Reals*		DECOMP	
fF1	SDL	Function (monadic)	Shift Digits Left	Shift digits of Integer Part of real number to the left (zeros are added) ; TAM : SDL __ TamNonReg menu	*Reals*		SDL	
fF2	SDR	Function (monadic)	Shift Digits Right	Shift digits of Integer Part of real number to the right (digits are dropped) ; TAM : SDR __ TamNonReg menu	*Reals*		SDR	
fF3	ROUND	Function (monadic)	Round	Round number to current display format (returns ℝeal number)	*Reals*		ROUND	
fF4	ROUNDI	Function (monadic)	Round to integer	Round real number to nearest long integer (max 1000 digits)	*Reals*		ROUNDI	
fF5	RDP	Function (monadic)	Round to decimal places	Round real number to number of decimal places, subject to rounding mode (RMODE) ; TAM : RDP __ TamNonReg menu ; Range is [0, 34]	*Reals*		RDP	
fF6	RSD	Function (monadic)	Round to significant digits	Round real number to number of significant digits, subject to rounding mode (RMODE) ; TAM : RSD __ TamNonReg menu	*Reals*		RSD	
gF1	floor	Function (monadic)	Floor	Mathematical floor of number	*Reals*		floor	
gF2	ceil	Function (monadic)	Ceiling	Mathematical ceiling of number	*Reals*		ceil	
gF3	|x|	Function (monadic)	Magnitude	Magnitude (absolute value) of ℂomplex number	*Complex numbers*		|x|	
gF4	∡	Function (monadic)	Argument (angle)	Argument (angle) of ℂomplex number	*Complex numbers*		∡	
gF5	Re	Function (monadic)	Real part	Real part of ℂomplex number	*Complex numbers*		Re	
gF6	Im	Function (monadic)	Imaginary part	Imaginary part of ℂomplex number	*Complex numbers*		Im	

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REALS	Real variables					
g-shift	↓EST	↓Lim	↓X	↓Y		
f-shift	PPER/a	PV	↑EST	↑Lim	↑X	↑Y
unshifted	ACC	CPER/a	FV	I%/a	NPPER	PMT
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	REALS	MENU	Real variables	Auto-generated catalog of variables of the specified datatype : Real number (1.0-1.5)	*Catalog*		REALS	
F1	ACC	Variable (real)	Accuracy of the integrator	Reserved Real variable for the accuracy of the integrator (ACC) ; set interactively from menu Tool∫ ; TI : 'ACC' :	*Integrator*		ACC	0
F2	CPER/a	Variable (real)	TVM compounding periods	Reserved Real variable for the TVM compounding periods per annum (cp/a) ; displays as c_a or c in menu TVM when value ≠ 0 ; TI : CPER/a = Compounding periods p.a. =	*Financial*		CPER/a	12
F3	FV	Variable (real)	TVM future value	Reserved Real variable for the TVM future value (FV) ; displays as F in menu TVM when value is large ; TI : FV = Future Value =	*Financial*		FV	0
F4	I%/a	Variable (real)	TVM annual interest rate	Reserved Real variable for the TVM annual interest rate as percentage (I/a) ; use 10 for 10%, not 0.1 ; displays as I_a or I in menu TVM when value is large ; TI : I%/a = I%YR = APR =	*Financial*		I%/a	0
F5	NPPER	Variable (real)	TVM number of payments	Reserved Real variable for the TVM number of payments (n) ; TI : NPPER = n pay periods =	*Financial*		NPPER	0
F6	PMT	Variable (real)	TVM payment	Reserved Real variable for the TVM payment (PMT) ; displays as P_m or P in menu TVM when value is large ; TI : PMT = Payment =	*Financial*		PMT	0
fF1	PPER/a	Variable (real)	TVM payment period	Reserved Real variable for the TVM payment period per annum (pp/a) ; displays as p_a or p in menu TVM when value ≠ 0 ; TI : PPER/a = Pay periods p.a. =	*Financial*		PPER/a	12
fF2	PV	Variable (real)	TVM present value	Reserved Real variable for the TVM present value (PV) ; displays as P_v or P in menu TVM when value is large ; TI : PV = Present Value =	*Financial*		PV	0
fF3	↑EST	Variable (real)	Upper estimate for solver	Reserved Real variable for the upper estimate for solver (↑Est) ; displays as ↑E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$_y^x$ or cpxSlv$_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↑EST	0
fF4	↑Lim	Variable (real)	Upper limit for integrator	Reserved Real variable for the upper limit for integrator (↑Lim) ; displays as ↑L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by ∫$_y^x$; TI : ↑ Upper limit :	*Integrator*		↑Lim	0
fF5	↑X	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by Draw$_y^x$; TI : '↑X' :	*Plotting*		↑X	10
fF6	↑Y	Variable (real)	Upper limit for Y-axis	Reserved Real variable for the upper limit for Y-axis (↑Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↑Y' :	*Plotting*		↑Y	10
gF1	↓EST	Variable (real)	Lower estimate for solver	Reserved Real variable for the lower estimate for solver (↓Est) ; displays as ↓E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$_y^x$ or cpxSlv$_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↓EST	0
gF2	↓Lim	Variable (real)	Lower limit for integrator	Reserved Real variable for the lower limit for integrator (↓Lim) ; displays as ↓L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by ∫$_y^x$; TI : ↓ Lower limit :	*Integrator*		↓Lim	0
gF3	↓X	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$_y^x$; TI : '↓X' :	*Plotting*		↓X	-10
gF4	↓Y	Variable (real)	Lower limit for Y-axis	Reserved Real variable for the lower limit for Y-axis (↓Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↓Y' :	*Plotting*		↓Y	0
gF5								
gF6								

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REG	TAM (register)					
g-shift	I	J	X	Y	Z	T
f-shift	K	L	A	B	C	D
unshifted	M	N	P	Q	R	S
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			
F1	M	EasyAccess (TAM)	Register M	Easy access to Register M (211) : General purpose register M ; also used to store distribution parameter : mean, median, location, degree of freedom 1, centre, lower limit ; Shortcut : STO/RCL {M} ; TI : M:	*Trailing input*			
F2	N	EasyAccess (TAM)	Register N	Easy access to Register N (212) : General purpose register N ; also used to store distribution parameter : degree of freedom 2, quantity, upper limit ; TI : N:	*Trailing input*			
F3	P	EasyAccess (TAM)	Register P	Easy access to Register P (213) : General purpose register P ; also used to store distribution parameter : probability ; TI : P:	*Trailing input*			
F4	Q	EasyAccess (TAM)	Register Q	Easy access to Register Q (214) : General purpose register Q ; also used to store distribution parameter : shape, 3rd integer ; TI : Q:	*Trailing input*			
F5	R	EasyAccess (TAM)	Register R	Easy access to Register R (215) : General purpose register R ; also used to store distribution parameter : rate ; TI : R:	*Trailing input*			
F6	S	EasyAccess (TAM)	Register S	Easy access to Register S (216) : General purpose register S ; also used to store distribution parameter : scale, spread ; TI : S:	*Trailing input*			
fF1	K	EasyAccess (TAM)	Register K	Easy access to Register K (111) : General purpose register K ; also used in VarMNU to store variable name when MVAR-defined button (<var...>) is pressed without NIM input ; also used to store last long integer prime factor for FACTORS or the remaining number to be factorised ; also used as the default alpha register for commands compatible with the HP-42S/DM42(n) calculator ; Shortcut : STO/RCL {K} ; TI : K:	*Trailing input*			
fF2	L	EasyAccess (TAM)	Register L	Easy access to Register L (108) : Last X ; Shortcut : STO/RCL {L} ; TI : L:	*Trailing input*			
fF3	A	EasyAccess (TAM)	Register A	Easy access to Register A (104) : Stack level 5 ; Shortcut : STO/RCL {A} ; TI : A:	*Trailing input*			
fF4	B	EasyAccess (TAM)	Register B	Easy access to Register B (105) : Stack level 6 ; Shortcut : STO/RCL {B} ; TI : B:	*Trailing input*			
fF5	C	EasyAccess (TAM)	Register C	Easy access to Register C (106) : Stack level 7 ; Shortcut : STO/RCL {C} ; TI : C:	*Trailing input*			
fF6	D	EasyAccess (TAM)	Register D	Easy access to Register D (107) : Stack level 8 ; Shortcut : STO/RCL {D} ; TI : D:	*Trailing input*			
gF1	I	EasyAccess (TAM)	Register I	Easy access to Register I (109) : General purpose register I ; also used to store current row of indexed matrix ; Shortcut : STO/RCL {I} ; TI : I: or M[I_r J_c]=<name> [<row> <col>] (if indexed matrix exists)	*Trailing input*			
gF2	J	EasyAccess (TAM)	Register J	Easy access to Register J (110) : General purpose register J ; also used to store current column of indexed matrix ; Shortcut : STO/RCL {J} ; TI : J: or M[I_r J_c]=<name> [<row> <col>] (if indexed matrix exists)	*Trailing input*			
gF3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
gF4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
gF5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
gF6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			

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REG	TAM (register)					
g-shift						
f-shift	V	W				
unshifted	E	F	G	H	O	U
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			
F1	E	EasyAccess (TAM)	Register E	Easy access to Register E (217) : General purpose register E ; Shortcut : STO/RCL {E} ; TI : E:	*Trailing input*			
F2	F	EasyAccess (TAM)	Register F	Easy access to Register F (218) : General purpose register F ; Shortcut : STO/RCL {F} ; TI : F:	*Trailing input*			
F3	G	EasyAccess (TAM)	Register G	Easy access to Register G (219) : General purpose register G ; also used to store third to last long integer prime factor for FACTORS ; Shortcut : STO/RCL {G} ; TI : G:	*Trailing input*			
F4	H	EasyAccess (TAM)	Register H	Easy access to Register H (220) : General purpose register H ; also used to store second to last long integer prime factor for FACTORS ; Shortcut : STO/RCL {H} ; TI : H:	*Trailing input*			
F5	O	EasyAccess (TAM)	Register O	Easy access to Register O (221) : General purpose register O ; TI : O:	*Trailing input*			
F6	U	EasyAccess (TAM)	Register U	Easy access to Register U (222) : General purpose register U ; TI : U:	*Trailing input*			
fF1	V	EasyAccess (TAM)	Register V	Easy access to Register V (223) : General purpose register V ; TI : V:	*Trailing input*			
fF2	W	EasyAccess (TAM)	Register W	Easy access to Register W (224) : General purpose register W ; TI : W:	*Trailing input*			
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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REGR	Regression					
g-shift	LR:a0	LR:a1	LR:a2	MODEL	ASSESS	SCATR
f-shift	s(a)					
unshifted	L.R.	r	s_{xy}	cov	$\hat{x}$	$\hat{y}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	REGR	MENU	Regression	Regression functions	*Plotting and curve fitting*		REGR	
F1	L.R.	Command	Linear Regression	Calculate all selected regression models, and select the one with the best coefficient of fit model correlation (r) ; TI : <model>* a_2 = ; y = a_1 = ; <formula> a_0 =	*Plotting and curve fitting*		L.R.	
F2	r	Command	Fit model correlation	Fit model correlation	*Plotting and curve fitting*		CORR	
F3	s_{xy}	Command	s_{xy}	Sample covariance	*Plotting and curve fitting*		s_{xy}	
F4	cov	Command	Fit model covariance	Fit model covariance	*Plotting and curve fitting*		COV	
F5	$\hat{x}$	Command	x hat	Estimation of x	*Plotting and curve fitting*		$\hat{x}$	
F6	$\hat{y}$	Command	y hat	Estimation of y	*Plotting and curve fitting*		$\hat{y}$	
fF1	s(a)	Command	Standard errors	Standard errors of line fitted ; s(a_0) in X ; s(a_1) in Y ; Info : Works for ExpF ; LinF ; LogF ; OrthoF ; PowerF ; does not work for CauchF ; GaussF ; HypF ; ParabF ; RootF	*Plotting and curve fitting*		s(a)	
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	LR:a0	Command	Retrieve LR-param a_0	Retrieve linear regression parameter a_0 and show formula and parameter name ; TI : y = <formula> : a_0 =	*Plotting and curve fitting*		LR:a0	
gF2	LR:a1	Command	Retrieve LR-param a_1	Retrieve linear regression parameter a_1 and show formula and parameter name ; TI : y = <formula> : a_1 =	*Plotting and curve fitting*		LR:a1	
gF3	LR:a2	Command	Retrieve LR-param a_2	Retrieve linear regression parameter a_2 and show formula and parameter name ; TI : y = <formula> : a_2 =	*Plotting and curve fitting*		LR:a2	
gF4	MODEL	MENU	Model	Functions to set parameter for which models are selected in the LR analysis ; Ref : https://47calc.com/doc/R47/Reference/R47v0_BestF_param.pdf	*Plotting and curve fitting*		MODEL	
gF5	ASSESS	MENU (item)	Assess	Display graphical assessments of the selected regression curves	*Plotting and curve fitting*			
gF6	SCATR	MENU (item)	Scatter plot	Scatter plot of measurements (programmable) ; Info : CENTRL (re)starts menu SCATR ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Measurement*		SCATR	

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p1	REGR	Link
F1	L.R.	
F2	r	
F3	s_{xy}	
F4	cov	
F5	$\hat{x}$	
F6	$\hat{y}$	
fF1	s(a)	
fF2		
fF3		
fF4		
fF5		
fF6		
gF1	LR:a0	
gF2	LR:a1	
gF3	LR:a2	
gF4	MODEL	https://47calc.com/doc/R47/Menus/R47v0_Menu_MODEL_page_1.pdf
gF5	ASSESS	https://47calc.com/doc/R47/Menus/R47v0_Menu_ASSESS_page_1.pdf
gF6	SCATR	https://47calc.com/doc/R47/Menus/R47v0_Menu_SCATR_page_1.pdf

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RESETS	Resets					
g-shift						
f-shift						
unshifted	Myα.R	MyM.R	HOME.R	PFN.R		KEYS.R
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	RESETS	MENU	Resets	Reset user menus to defaults ; delete user keyboard assignments	*Cleanup*		RESETS	
F1	Myα.R	Command	Myα menu reset	Clean (delete) all Myα menu user assignments ; TI : Myα menu cleaned	*Cleanup*			
F2	MyM.R	Command	MyMenu reset	Clean (delete) all MyMenu user assignments ; TI : MyMenu menu cleaned	*Cleanup*			
F3	HOME.R	Command	HOME menu reset	Reset all HOME menu user assignments (and open menu) ; TI : HOME menu reset to default	*Cleanup*			
F4	PFN.R	Command	P.FN menu reset	Reset all P.FN user assignments (and open menu) ; TI : P.FN menu reset to default	*Cleanup*			
F5								
F6	KEYS.R	Command	Keyboard reset	Clean (delete) all key assignments ; TI : Key assignments cleaned ; Info : the Normal Mode key assigment can be set in menu ◻ KEY if the calculator layout allows it	*Cleanup*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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RIBBONS	Ribbons					
g-shift						
f-shift			M.FIN+	M.SAV+	M.C47+	M.R47+
unshifted	M.CPX	M.ENG	M.FIN	M.SAV	M.C47	M.R47
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	RIBBONS	MENU	Ribbons	Selection of ribbons for MyM (MyMenu) ; Info : Ribbons are predefined sets of buttons to assign to the primary (unshifted) row of MyM (MyMenu)	*Customisation*		RIBBONS	
F1	M.CPX	Command	MyMenu Complex	MyMenu primary F-key Complex ribbon ; leaves shifted rows intact ; documented as MyMenu p1 ; TI : MyMenu primary F-key Complex ribbon	*Customisation*		M.CPX	
F2	M.ENG	Command	MyMenu Engineering	MyMenu primary F-key Engineering ribbon ; leaves shifted rows intact ; documented as MyMenu p2 ; TI : MyMenu primary F-key Engineering ribbon ; Info : ribbon M.ENG is layout dependent	*Customisation*		M.ENG	
F3	M.FIN	Command	MyMenu Financial	MyMenu primary F-key Financial ribbon ; leaves shifted rows intact ; documented as MyMenu p3 ; TI : MyMenu primary F-key Financial ribbon	*Customisation*		M.FIN	
F4	M.SAV	Command	MyMenu Save/Load	MyMenu primary F-key Save/Load ribbon ; leaves shifted rows intact ; documented as MyMenu p4 ; TI : MyMenu primary F-key Save/Load ribbon	*Customisation*		M.SAV	
F5	M.C47	Command	MyMenu C47	MyMenu primary F-key C47 ribbon ; leaves shifted rows intact ; documented as MyMenu p5 ; TI : MyMenu primary F-key C47 ribbon	*Customisation*		M.C47	
F6	M.R47	Command	MyMenu R47	MyMenu primary F-key R47 ribbon ; leaves shifted rows intact ; documented as MyMenu p6 ; TI : MyMenu primary F-key R47 ribbon	*Customisation*		M.R47	
fF1								
fF2								
fF3	M.FIN+	Command	MyMenu Financial Plus	MyMenu primary F-key Financial Plus ribbon ; leaves shifted rows intact ; documented as MyMenu p7 ; TI : MyMenu primary F-key Financial Plus ribbon	*Customisation*		M.FIN+	
fF4	M.SAV+	Command	MyMenu Save/Load Plus	MyMenu primary F-key Save/Load Plus ribbon ; leaves shifted rows intact ; documented as MyMenu p8 ; TI : MyMenu primary F-key Save/Load Plus ribbon	*Customisation*		M.SAV+	
fF5	M.C47+	Command	MyMenu C47 Plus	MyMenu primary F-key C47 Plus ribbon ; leaves shifted rows intact ; documented as MyMenu p9 ; TI : MyMenu primary F-key C47 Plus ribbon	*Customisation*		M.C47+	
fF6	M.R47+	Command	MyMenu R47 Plus	MyMenu primary F-key R47 Plus ribbon ; leaves shifted rows intact ; documented as MyMenu p10 ; TI : MyMenu primary F-key R47 Plus ribbon	*Customisation*		M.R47+	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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S.INTS	Short integer variables					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	S.INTS	MENU	Short integer variables	Auto-generated catalog of variables of the specified datatype : Short integer (8.02-8.16)	*Catalog*		S.INTS	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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SCATR	Scatter plot					
g-shift						
f-shift						
unshifted	CENTRL	s_{mi}				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	SCATR	MENU (item)	Scatter plot	Scatter plot of measurements (programmable) ; Info : CENTRL (re)starts menu SCATR ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Measurement*		SCATR	
F1	CENTRL	Command (submnu)	(Plot) Central	Orthogonal curve fit and show parameters, requires 30 data pairs ; Info : Opens the graph mode and (re)starts menu SCATR	*Measurement*		CENTRL	
F2	s_{mi}	Command	Precision	Precision of measuring instrument investigated, requires 30 data pairs -- see https://blog.minitab.com/en/real-world-quality-improvement/orthogonal-regression-testing-the-equivalence-of-instruments ; TI : s_{mi} =	*Measurement*		s_{mi}	
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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SecPrp:	Section properties conversions					
g-shift	Struct:	SecPrp:	mm^3 ←	→ in^3	mm^6 ←	→ in^6
f-shift			mm^2 ←	→ in^2	mm^4 ←	→ in^4
unshifted	kg/m ←	→ lbs/ft	mm ←	→ in	·m	·k
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	SecPrp:	MENU	Section properties conversions	Convert between units of section properties ; typical properties given in tables of steel/ALU sections ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		SecPrp:	
F1	lbs/ft→kg/m (kg/m ←)	Function (monadic, linked)	lbs/ft to kg/m	Convert pound per foot to kilogram per metre ; TI : kg/m:	*Fixed pair conversions*	$CONV_{HP}$		
F2	kg/m→lbs/ft (→ lbs/ft)	Function (monadic, linked)	kg/m to lbs/ft	Convert kilogram per metre to pound per foot ; TI : lbs/ft:	*Fixed pair conversions*	$CONV_{HP}$		
F3	in→mm (mm ←)	Function (monadic, linked)	in to mm	Convert inch to millimetre ; TI : mm:	*Distance conversions*	$CONV_{HP}$		
F4	mm→in (→ in)	Function (monadic, linked)	mm to in	Convert millimetre to inch ; TI : in:	*Distance conversions*	$CONV_{HP}$		
F5	·m	Command (nonpgm)	milli	Factor 10^{-3}	*Numeric input*			
F6	·k	Command (nonpgm)	kilo	Factor 10^{3}	*Numeric input*			
fF1								
fF2								
fF3	in^2→mm^2 (mm^2 ←)	Function (monadic, linked)	in^2 to mm^2	Convert square inch to square millimetre ; TI : mm^2:	*Area conversions*	$CONV_{HP}$		
fF4	mm^2→in^2 (→ in^2)	Function (monadic, linked)	mm^2 to in^2	Convert square millimetre to square inch ; TI : in^2:	*Area conversions*	$CONV_{HP}$		
fF5	in^4→mm^4 (mm^4 ←)	Function (monadic, linked)	in^4 to mm^4	Convert inch to the power 4 to millimetre to the power 4 ; TI : mm^4:	*Fixed pair conversions*	$CONV_{HP}$		
fF6	mm^4→in^4 (→ in^4)	Function (monadic, linked)	mm^4 to in^4	Convert millimetre to the power 4 to inch to the power 4 ; TI : in^4:	*Fixed pair conversions*	$CONV_{HP}$		
gF1	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*	$CONV_{HP}$	Struct:	
gF2	SecPrp:	MENU	Section properties conversions	Convert between units of section properties ; typical properties given in tables of steel/ALU sections ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		SecPrp:	
gF3	in^3→mm^3 (mm^3 ←)	Function (monadic, linked)	in^3 to mm^3	Convert cubic inch to cubic millimetre ; TI : mm^3:	*Volume conversions*	$CONV_{HP}$		
gF4	mm^3→in^3 (→ in^3)	Function (monadic, linked)	mm^3 to in^3	Convert cubic millimetre to cubic inch ; TI : in^3:	*Volume conversions*	$CONV_{HP}$		
gF5	in^6→mm^6 (mm^6 ←)	Function (monadic, linked)	in^6 to mm^6	Convert inch to the power 6 to millimetre to the power 6 ; TI : mm^6:	*Fixed pair conversions*	$CONV_{HP}$		
gF6	mm^6→in^6 (→ in^6)	Function (monadic, linked)	mm^6 to in^6	Convert millimetre to the power 6 to inch to the power 6 ; TI : in^6:	*Fixed pair conversions*	$CONV_{HP}$		

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p1	SecPrp:	Link
F1	lbs/ft→kg/m (kg/m ←)	
F2	kg/m→lbs/ft (→ lbs/ft)	
F3	in→mm (mm ←)	
F4	mm→in (→ in)	
F5	·m	
F6	·k	
fF1		
fF2		
fF3	in^2→mm^2 (mm^2 ←)	
fF4	mm^2→in^2 (→ in^2)	
fF5	in^4→mm^4 (mm^4 ←)	
fF6	mm^4→in^4 (→ in^4)	
gF1	Struct:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Struct_page_1.pdf
gF2	SecPrp:	https://47calc.com/doc/R47/Menus/R47v0_Menu_SecPrp_page_1.pdf
gF3	in^3→mm^3 (mm^3 ←)	
gF4	mm^3→in^3 (→ in^3)	
gF5	in^6→mm^6 (mm^6 ←)	
gF6	mm^6→in^6 (→ in^6)	

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SIM EQ (M_SIMQ)	Matrix simultaneous equations					
g-shift						
f-shift						
unshifted	Mat A	Mat B				Mat X
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	SIM EQ (M_SIMQ)	MENU (item)	Matrix simultaneous equations	Matrix simultaneous equations : Mat A · Mat X = Mat B, where Mat A is the equation coefficient matrix and Mat B is the equation result vector ; Mat X is the equation solution vector ; TAM : SIM_EQ __ TamNonReg menu to enter number of equations ; Info : CAT.MENUS M_SIMQ	*Matrix operations*		SIM_EQ	
F1	Mat A	Variable (matrix)	Matrix A	Reserved Matrix variable for the Matrix A (Mat A) ; enter equation coefficient matrix using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_A	
F2	Mat B	Variable (matrix)	Matrix B	Reserved Matrix variable for the Matrix B (Mat B) ; enter equation result vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_B	
F3								
F4								
F5								
F6	Mat X	Command	Matrix X	Create reserved Matrix variable for the Matrix X (Mat X) ; calculate equation solution vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_X	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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SOLVE (MVAR)	Solver (RPN)					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var...>			
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	SOLVE (MVAR)	Command (submnu)	Solver (RPN)	Real solver for the RPN program (with MVAR variables) selected with TamLblOnly menu ; presents menu for initial guesses and variable selection ; interrupt by [EXIT] ; tolerance set by SDIGS ; in Program Entry Mode, the RPN program must be specified by PGMSLV and the variable to solve for using the TamVarOnly menu ; SOLVE will skip the next program step if no root is found ; TAM : SOLVE __ TamLblOnly menu (uses TamVarOnly menu in PEM, to specify variable to solve for) ; Info : displays current top and bottom results and iteration counter ; shown if flag MONIT is SET ; Displays : Accuracy ≈ ; <var1..n> =	*RPN Calculus and plotting*		SOLVE	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 as created by MVAR (in RPN program) (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Speed:	Speed conversions					
g-shift	km/h ←	→ knot	mph ←	→ knot	m/s ←	→ knot
f-shift	km/h ←	→ ft/s	mph ←	→ ft/s	m/s ←	→ ft/s
unshifted	km/h ←	→ m/s	mph ←	→ km/h	m/s ←	→ mph
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Speed:	MENU	Speed conversions	Convert between units of speed ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Speed conversions*		Speed:	
F1	m/s→km/h (km/h ←)	Function (monadic, linked)	m/s to km/h	Convert metre per second to kilometre per hour ; TI : km/h:	*Speed conversions*	$CONV_{HP}$		
F2	km/h→m/s (→ m/s)	Function (monadic, linked)	km/h to m/s	Convert kilometre per hour to metre per second ; TI : m/s:	*Speed conversions*	$CONV_{HP}$		
F3	km/h→mph (mph ←)	Function (monadic, linked)	km/h to mph	Convert kilometre per hour to mile per hour ; TI : mph:	*Speed conversions*	$CONV_{HP}$		
F4	mph→km/h (→ km/h)	Function (monadic, linked)	mph to km/h	Convert mile per hour to kilometre per hour ; TI : km/h:	*Speed conversions*	$CONV_{HP}$		
F5	mph→m/s (m/s ←)	Function (monadic, linked)	mph to m/s	Convert mile per hour to metre per second ; TI : m/s:	*Speed conversions*	$CONV_{HP}$		
F6	m/s→mph (→ mph)	Function (monadic, linked)	m/s to mph	Convert metre per second to mile per hour ; TI : mph:	*Speed conversions*	$CONV_{HP}$		
fF1	ft/s→km/h (km/h ←)	Function (monadic, linked)	ft/s to km/h	Convert foot per second to kilometre per hour ; TI : km/h:	*Speed conversions*	$CONV_{HP}$		
fF2	km/h→ft/s (→ ft/s)	Function (monadic, linked)	km/h to ft/s	Convert kilometre per hour to foot per second ; TI : ft/s:	*Speed conversions*	$CONV_{HP}$		
fF3	ft/s→mph (mph ←)	Function (monadic, linked)	ft/s to mph	Convert foot per second to mile per hour ; TI : mph:	*Speed conversions*	$CONV_{HP}$		
fF4	mph→ft/s (→ ft/s)	Function (monadic, linked)	mph to ft/s	Convert mile per hour to foot per second ; TI : ft/s:	*Speed conversions*	$CONV_{HP}$		
fF5	ft/s→m/s (m/s ←)	Function (monadic, linked)	ft/s to m/s	Convert foot per second to metre per second ; TI : m/s:	*Speed conversions*	$CONV_{HP}$		
fF6	m/s→ft/s (→ ft/s)	Function (monadic, linked)	m/s to ft/s	Convert metre per second to foot per second ; TI : ft/s:	*Speed conversions*	$CONV_{HP}$		
gF1	knot→km/h (km/h ←)	Function (monadic, linked)	knot to km/h	Convert knot to kilometre per hour ; TI : km/h:	*Speed conversions*	$CONV_{HP}$		
gF2	km/h→knot (→ knot)	Function (monadic, linked)	km/h to knot	Convert kilometre per hour to knot ; TI : knot:	*Speed conversions*	$CONV_{HP}$		
gF3	knot→mph (mph ←)	Function (monadic, linked)	knot to mph	Convert knot to mile per hour ; TI : mph:	*Speed conversions*	$CONV_{HP}$		
gF4	mph→knot (→ knot)	Function (monadic, linked)	mph to knot	Convert mile per hour to knot ; TI : knot:	*Speed conversions*	$CONV_{HP}$		
gF5	knot→m/s (m/s ←)	Function (monadic, linked)	knot to m/s	Convert knot to metre per second ; TI : m/s:	*Speed conversions*	$CONV_{HP}$		
gF6	m/s→knot (→ knot)	Function (monadic, linked)	m/s to knot	Convert metre per second to knot ; TI : knot:	*Speed conversions*	$CONV_{HP}$		

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STAT	Statistics					
g-shift	n	$\bar{x}_G$	ε	ε_p	ε_m	REGR
f-shift	Σ-	$\bar{x}_w$	s_w	σ_w	s_{mw}	$\bar{x}_H$
unshifted	Σ+	$\bar{x}$	s	σ	s_m	$\bar{x}_{RMS}$
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	STAT	MENU	Statistics	Statistics functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Formulas.pdf	*Summary statistics*		STAT	
F1	Σ+	Command	Sigma+	Enter data into the statistics matrix (STATS) ; TI : nnn data point(s) ; Info : if a nx2 matrix is in X, Σ+ appends the data to the STATS matrix (creating it as necessary) ; Σ+ disables automatic stack lift for the next entry	*Summary statistics*		Σ+	
F2	$\bar{x}$	Command	Arithmetic means	Arithmetic means, x and y -- see Formula_XBAR.png : https://47calc.com/doc/Images/Formula_XBAR.png ; TI : $\bar{x}$ = ; $\bar{y}$ =	*Summary statistics*		$\bar{x}$	
F3	s	Command	Sample standard deviation	Sample standard deviation -- see Formula_STDDEVWEIGHTED.png : https://47calc.com/doc/Images/Formula_STDDEVWEIGHTED.png ; TI : s_x = ; s_y =	*Summary statistics*		s	
F4	σ	Command	Population standard deviation	Population standard deviation -- see Formula_STDDEV.png : https://47calc.com/doc/Images/Formula_STDDEV.png ; TI : σ_x = ; σ_y =	*Summary statistics*		σ	
F5	s_m	Command	Standard error of the mean	Standard error of the mean -- see Formula_SM.png : https://47calc.com/doc/Images/Formula_SM.png ; TI : s_{mx} = ; s_{my} =	*Summary statistics*		s_m	
F6	$\bar{x}_{RMS}$	Command	Quadratic mean	Data evaluation of quadratic mean -- see Formula_XRMS.png : https://47calc.com/doc/Images/Formula_XRMS.png ; TI : $\bar{x}_{RMS}$ = ; $\bar{x}_{RMS}$ =	*Summary statistics*		$\bar{x}_{RMS}$	
fF1	Σ-	Command	Sigma-	Remove data from the statistics matrix (STATS) and put the values on the stack ; TI : nnn data points ; Info : Σ- pushes values onto the stack unless automatic stack lift is disabled, e.g. by Σ+	*Summary statistics*		Σ-	
fF2	$\bar{x}_w$	Command	Weighted mean	Data evaluation of weighted mean -- see Formula_XW.png : https://47calc.com/doc/Images/Formula_XW.png ; TI : $\bar{x}_w$ =	*Summary statistics*		$\bar{x}_w$	
fF3	s_w	Command	Weighted population standard deviation	Weighted population standard deviation -- see Formula_SW.png : https://47calc.com/doc/Images/Formula_SW.png ; TI : s_w =	*Summary statistics*		s_w	
fF4	σ_w	Command	Weighted population standard deviation	Weighted population standard deviation -- see Formula_STDDEVPOP.png : https://47calc.com/doc/Images/Formula_STDDEVPOP.png ; TI : σ_w =	*Summary statistics*		σ_w	
fF5	s_{mw}	Command	Standard error of the weighted mean	Standard error of the weighted mean -- see Formula_SMW.png : https://47calc.com/doc/Images/Formula_SMW.png ; TI : s_{mw} =	*Summary statistics*		s_{mw}	
fF6	$\bar{x}_H$	Command	Harmonic mean	Data evaluation of harmonic mean -- see Formula_XH.png : https://47calc.com/doc/Images/Formula_XH.png ; TI : $\bar{x}_H$ = ; $\bar{y}_H$ =	*Summary statistics*		$\bar{x}_H$	
gF1	n	Command	n	Number of samples	*Summary statistics*		nΣ	
gF2	$\bar{x}_G$	Command	Geometric mean	Data evaluation of geometric mean -- see Formula_XG.png : https://47calc.com/doc/Images/Formula_XG.png ; TI : $\bar{x}_G$ = ; $\bar{y}_G$ =	*Summary statistics*		$\bar{x}_G$	
gF3	ε	Command	Scattering factor for a lognormal sample	Scattering factor for a lognormal sample -- see Formula_SCATTFACT.png : https://47calc.com/doc/Images/Formula_SCATTFACT.png ; TI : ε_x = ; ε_y =	*Summary statistics*		ε	
gF4	ε_p	Command	Scattering factor for a lognormal population	Scattering factor for a lognormal population -- see Formula_SCATTFACTp.png : https://47calc.com/doc/Images/Formula_SCATTFACTp.png ; TI : ε_{px} = ; ε_{py} =	*Summary statistics*		ε_p	
gF5	ε_m	Command	Scattering factor of the geometric mean	Scattering factor of the geometric mean -- see Formula_SCATTFACTm.png : https://47calc.com/doc/Images/Formula_SCATTFACTm.png ; TI : ε_{mx} = ; ε_{my} =	*Summary statistics*		ε_m	
gF6	REGR	MENU	Regression	Regression functions	*Plotting and curve fitting*		REGR	

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p1	STAT	Link
F1	Σ+	
F2	$\bar{x}$	
F3	s	
F4	σ	
F5	s_m	
F6	$\bar{x}_{RMS}$	
f F1	Σ-	
f F2	$\bar{x}_w$	
f F3	s_w	
f F4	σ_w	
f F5	s_{mw}	
f F6	$\bar{x}_H$	
g F1	n	
g F2	$\bar{x}_G$	
g F3	ε	
g F4	ε_p	
g F5	ε_m	
g F6	REGR	https://47calc.com/doc/R47/Menus/R47v0_Menu_REGR_page_1.pdf

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STAT	Statistics					
g-shift						CLΣ
f-shift		x%ILE	xMAD	xIQR		xRANGE
unshifted	xMIN	xQ1	xMEDN	xQ3	xMAX	xSUM
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	STAT	MENU	Statistics	Statistics functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Formulas.pdf	*Summary statistics*		STAT	
F1	x_{MIN}	Command	Minima	Minima ; TI : x_{MIN} = ; y_{MIN} =	*Summary statistics*		x_{MIN}	
F2	x_{Q1}	Command	Lower quartile	Lower quartile for both X and Y -- see https://en.wikipedia.org/wiki/Quartile#Method_1 ; TI : $Q_{1\ x}$ = ; $Q_{1\ y}$ =	*Summary statistics*		x_{Q1}	
F3	x_{MEDN}	Command	Median	Sort the data and return the middle value for both X and Y ; for an even number of samples, the arithmetic mean of the two middle values is returned ; TI : md_x = ; md_y =	*Summary statistics*		x_{MEDN}	
F4	x_{Q3}	Command	Upper quartile	Upper quartile for both X and Y -- see https://en.wikipedia.org/wiki/Quartile#Method_1 ; TI : $Q_{3\ x}$ = ; $Q_{3\ y}$ =	*Summary statistics*		x_{Q3}	
F5	x_{MAX}	Command	Maxima	Maxima ; TI : x_{MAX} = ; y_{MAX} =	*Summary statistics*		x_{MAX}	
F6	x_{SUM}	Command	x_{SUM}	Return Σx and Σy in X and Y respectively ; TI : Σ_x = ; Σ_y =	*Summary statistics*		x_{SUM}	
fF1								
fF2	$x\%_{ILE}$	Command	Percentile	Percentile ; TI : $pctile_x$ = ; $pctile_y$ =	*Summary statistics*		$x\%_{ILE}$	
fF3	x_{MAD}	Command	Median absolute deviation	Median absolute deviation for both X and Y ; this is the median of the differences between each data point and the overall median ; TI : mad_x = ; mad_y =	*Summary statistics*		x_{MAD}	
fF4	x_{IQR}	Command	Interquartile range	Interquartile range for both X and Y ; this is equal to Q.3 - Q.1 ; TI : iqr_x = ; iqr_y =	*Summary statistics*		x_{IQR}	
fF5								
fF6	x_{RANGE}	Command	Stats range	Range for both X and Y ; this is equal to MAX - MIN of the statistics matrix (STATS) ; TI : rg_x = ; rg_y =	*Summary statistics*		x_{RANGE}	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	CLΣ	Command	Clear statistics	Clear all statistics data ; delete matrices HISTO and STATS	*Cleanup*		CLΣ	

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Φ:	Standard normal distribution					
g-shift						
f-shift						
unshifted	ϕ_p		$\Phi_{\triangle}$	$\Phi_{\triangle}$		Φ^{-1}
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Φ:	MENU	Standard normal distribution	Standard normal probability distribution (continuous) ; Info : mean = 0 ; standard deviation = 1	*Probability (real)*		Φ:	
F1	ϕ_p	Function (monadic)	Standard normal pdf	Standard normal probability density function	*Probability (real)*		ϕ_p	
F2								
F3	$\Phi_{\triangle}$	Function (monadic)	Standard normal cdf (lower)	Standard normal cumulative distribution (lower tail)	*Probability (real)*		$\Phi_{\triangle}$	
F4	$\Phi_{\triangle}$	Function (monadic)	Standard normal cdf (upper)	Standard normal cumulative distribution (upper tail)	*Probability (real)*		$\Phi_{\triangle}$	
F5								
F6	Φ^{-1}	Function (monadic)	Standard normal qf (inverse)	Standard normal inverse cumulative distribution (quantile)	*Probability (real)*		Φ^{-1}	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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STK	Stack					
g-shift	4SWAP					MULTSTK
f-shift	DROPy	x⇄	y⇄	z⇄	t⇄	⇄
unshifted	DROPx	R↓	R↑	LASTx	FILL	CLSTK
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_STOPW_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	STK	MENU	Stack	Stack functions	*Stack*		STK	
F1	DROPx	Command	Drop X	Drop X from stack ; Shortcut : double [←] (if ←DROP is CLEAR -- default)	*Stack*		DROPx	
F2	R↓	Command	Roll down	Roll down stack	*Stack*		R↓	
F3	R↑	Command	Roll up	Roll up stack	*Stack*		R↑	
F4	LASTx	Command	Last X	Recall last X (Register L)	*Stack*		LASTx	
F5	FILL	Command	Fill stack	Fill stack with value in the X-register	*Stack*		FILL	
F6	CLSTK	Command	Clear stack	Clear stack registers : when stack size is 8, clears XYZTABCD ; when stack size is 4, clears XYZT ; if setting iLI is ON, the stack is filled with 0 (Long integers) ; when used while plotting, CLSTK returns to the normal screen as the stack is expected to show, implying an exit from graph and other modes ; Shortcut : longpress [←] ; SBI : 8 ; 4	*Cleanup*	SSIZE8	CLSTK	
fF1	DROPy	Command	Drop Y	Drop Y from stack	*Stack*		DROPy	
fF2	x⇄	Command	Swap X	Swap X and register ; TAM : x⇄ __ Tam menu	*Stack*		x⇄	
fF3	y⇄	Command	Swap Y	Swap Y and register ; TAM : y⇄ __ Tam menu	*Stack*		y⇄	
fF4	z⇄	Command	Swap Z	Swap Z and register ; TAM : z⇄ __ Tam menu	*Stack*		z⇄	
fF5	t⇄	Command	Swap T	Swap T and register ; TAM : t⇄ __ Tam menu	*Stack*		t⇄	
fF6	⇄	Command	Shuffle stack	Shuffle stack: replace X Y Z T by selection of X Y Z T ; TAM : ⇄ ____ TamShuffle menu	*Stack*		⇄	
gF1	4SWAP	Command	Swap X, Y, Z, T and A, B, C, D	Swap X, Y, Z, T and A, B, C, D ; 0 :	*Stack*		4SWAP	
gF2								
gF3								
gF4								
gF5								
gF6	MULTSTK	MENU	Multi-stack commands	Multi-stack commands	*Stack*		MULTSTK	

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p1	STK	Link
F1	DROPx	
F2	R↓	
F3	R↑	
F4	LASTx	
F5	FILL	
F6	CLSTK	
f F1	DROPy	
f F2	x⇄	
f F3	y⇄	
f F4	z⇄	
f F5	t⇄	
f F6	⇄	
g F1	4SWAP	
g F2		
g F3		
g F4		
g F5		
g F6	MULTSTK	https://47calc.com/doc/R47/Menus/R47v0_Menu_MULTSTK_page_1.pdf

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STOPW	Stopwatch					
g-shift	[Σ+]	[+]	[ENTER]	[.]	[R/S]	[←]
f-shift	PLSTAT	REGS	RCL	RCL$^{\overline{x}}$	0.1s	CLΣ
unshifted	TIM→Σ_0	LAP→Σ_0	TIM→R_0	LAP→R_0	R/S	RESET
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_STRINGS_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	STOPW	App	Stopwatch	Stopwatch with running time, counter and countdown (playing BEEP after running down)	*Time functions*		STOPW	
F1	TIM→Σ_0	Command	Add time to STATS	Add time to STATS (statistics matrix) ; subscript shows number of data points ; Shortcut : [Σ+] (STOPW active)	*Stopwatch*			0
F2	LAP→Σ_0	Command	Add lap time to STATS	Add lap time to STATS (statistics matrix) and reset lap timer ; subscript shows number of data points ; Shortcut : [+] (STOPW active)	*Stopwatch*			0
F3	TIM→R_0	Command	Store time in register	Store time in register and increment CRA (Current Register Address) ; subscript shows R/S ; Shortcut : [ENTER] (STOPW active)	*Stopwatch*			0
F4	LAP→R_0	Command	Store lap time in register	Store lap time in register, increment CRA (Current Register Address) and reset lap timer ; subscript shows CRA ; Shortcut : [.] (STOPW active)	*Stopwatch*			0
F5	R/S	Command	Start/stop stopwatch	Start/stop the stopwatch ; Shortcut : [R/S] (STOPW active)	*Stopwatch*			
F6	RESET	Command	Reset stopwatch	Reset the stopwatch ; Shortcut : [←] (STOPW active)	*Stopwatch*			
fF1	PLSTAT	MENU (item)	Plot statistics	Plot statistics matrix (STATS, programmable) ; TI : Calculating graph coordinates ... may be shown when plotting the statistics matrix ; Info : in Program Entry Mode, use PAUSE, SNAP or PLTFCNS to view the plot (PLTFCNS also displays the plot options menu) ; when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS ; Ref : https://47calc.com/doc/Application%20Notes/AN0003_C47_JM_Graphing.pdf	*Plotting and statistics*		PLSTAT	
fF2	REGS	Browser	Register browser	Browse all registers ; Shortcut : [.] : Switch register/variable view,[R/S] : Switch contents/storage view,[RCL] : Recall bottom item,[↑], [↓], , 00..99 : Navigate, [EXIT] : Exit Register browser ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Status*		REGS	
fF3	RCL	Command (nonpgm)	Recall and load to timer	Recall register value and load to stopwatch timer (decimal hours or time value) ; Shortcut : [RCL] (STOPW active)	*Stopwatch*			
fF4	RCL⌛	Command (nonpgm)	Recall and load to countdown	Recall register value and load to countdown timer (decimal hours or time value)	*Stopwatch*			
fF5	0.1s	Setting (pgm)	Tenths of seconds	Show running time with tenths of seconds	*Stopwatch*			ON
fF6	CLΣ	Command	Clear statistics	Clear all statistics data ; delete matrices HISTO and STATS	*Cleanup*		CLΣ	
gF1	[Σ+]	Shortcut (key)	Stopwatch key [Σ+]	Keyboard shortcut for button TIM→Σ "Add time to STATS" ; Info : [Σ+] shortcut key is not available in this layout, may be created using keyboard assignment	*Stopwatch*			
gF2	[+]	Shortcut (key)	Stopwatch key [+]	Keyboard shortcut for button LAP→Σ "Add lap time to STATS"	*Stopwatch*			
gF3	[ENTER]	Shortcut (key)	Stopwatch key [ENTER]	Keyboard shortcut for button TIM→R "Store time in register"	*Stopwatch*			
gF4	[.]	Shortcut (key)	Stopwatch key [.]	Keyboard shortcut for button LAP→R "Store lap time in register"	*Stopwatch*			
gF5	[R/S]	Shortcut (key)	Stopwatch key [R/S]	Keyboard shortcut for button R/S "Start/stop stopwatch"	*Stopwatch*			
gF6	[←]	Shortcut (key)	Stopwatch key [←]	Keyboard shortcut for button RESET "Reset stopwatch"	*Stopwatch*			

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p1	STOPW	Link
F1	TIM→Σ_0	
F2	LAP→Σ_0	
F3	TIM→R_0	
F4	LAP→R_0	
F5	R/S	
F6	RESET	
f F1	PLSTAT	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLSTAT_page_1.pdf
f F2	REGS	
f F3	RCL	
f F4	RCL$\overline{x}$	
f F5	0.1s	
f F6	CLΣ	
g F1	[Σ+]	
g F2	[+]	
g F3	[ENTER]	
g F4	[.]	
g F5	[R/S]	
g F6	[←]	

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STRINGS	Text string variables					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	STRINGS	MENU	Text string variables	Auto-generated catalog of variables of the specified datatype : Text string (5)	*Catalog*		STRINGS	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Struct:	Structural conversions					
g-shift	FIX ○	SCI ○	ENG ○	UNIT ○	SIG ○	ALL_3 ⊙
f-shift						
unshifted	SecPrp:	MatPrp:	FLoads:	MLoads:	PLoads:	Mass:
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_SYS-FL_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Struct:	MENU	Structural conversions	Section and material properties, force and moment load conversions ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Miscellaneous conversions*		Struct:	
F1	SecPrp:	MENU	Section properties conversions	Convert between units of section properties ; typical properties given in tables of steel/ALU sections ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		SecPrp:	
F2	MatPrp:	MENU	Material properties conversions	Convert between units of material properties ; typical material properties given in material data sheets references ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		MatPrp:	
F3	FLoads:	MENU	Force loads conversions	Convert between units of force loads ; typical structural loads units ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Miscellaneous conversions*		FLoads:	
F4	MLoads:	MENU	Moment loads conversions	Convert between units of moment loads ; typical moment loads units (torque) ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Torque/moment conversions*		MLoads:	
F5	PLoads:	MENU	Pressure loads conversions	Convert between units of pressure loads ; typical loads presented as pressures ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Pressure conversions*		PLoads:	
F6	Mass:	MENU	Mass conversions	Convert between units of mass ; Info : Flag CONV$_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET) ; Ref : https://47calc.com/doc/Application%20Notes/AN0027_C47_R47_DA_Structural_conversions.pdf	*Mass conversions*	CONV$_{HP}$	Mass:	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	FIX 0	Setting (pgm)	FIXed notation	Set numeric display mode to fixed notation with nn decimals (NDEC = nn = 0-19 ; DF = 1) ; TAM : FIX __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		FIX 0	OFF
gF2	SCI 0	Setting (pgm)	SCIentific notation	Set numeric display mode to scientific notation with nn decimals = nn+1 digits (NDEC = nn = 0-19 ; DF = 2) ; TAM : SCI __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		SCI 0	OFF
gF3	ENG 0	Setting (pgm)	ENGineering notation	Set numeric display mode to engineering notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 3) ; TAM : ENG __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*		ENG 0	OFF
gF4	UNIT 0	Setting (pgm)	Unit (prefix) notation	Set numeric display mode to unit (prefix) notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 5) ; showing all or limited set of SI-prefixes depending on flag PFX.All ; if flag 1024^n is SET, binary prefixes are shown if available and long integer values are indicated by Z: ; prefixes can be selected directly from menu Prefix ; TAM : UNIT __ TamNonReg menu ; Info : this setting applies to Real numbers and Complex numbers	*Display*	1024^n	UNIT 0	OFF

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF5	SIG ⊙	Setting (pgm)	SIGnificant digits notation	Set numeric display mode to significant digits notation with nn+1 digits (NDEC = nn = 0-19 ; DF = 4) ; switching over to scientific or engineering notation when number of rounded trailing zeros exceeds group size (IPGRP) ; TAM : SIG __ TamNonReg menu ; Info : this setting applies to ℝeal numbers and ℂomplex numbers	*Display*		SIG ⊙	OFF
gF6	ALL_3 ⊛	Setting (pgm)	All digits notation	Set numeric display mode to ALL digits notation ; display all digits as far as possible with maximum nn decimal zeros (NDEC = nn = 0-19 ; DF = 0) ; TAM : ALL __ TamNonReg menu ; Info : this setting applies to ℝeal numbers and ℂomplex numbers	*Display*		ALL_3 ⊛	3

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p1	Struct:	Link
F1	SecPrp:	https://47calc.com/doc/R47/Menus/R47v0_Menu_SecPrp_page_1.pdf
F2	MatPrp:	https://47calc.com/doc/R47/Menus/R47v0_Menu_MatPrp_page_1.pdf
F3	FLoads:	https://47calc.com/doc/R47/Menus/R47v0_Menu_FLoads_page_1.pdf
F4	MLoads:	https://47calc.com/doc/R47/Menus/R47v0_Menu_MLoads_page_1.pdf
F5	PLoads:	https://47calc.com/doc/R47/Menus/R47v0_Menu_PLoads_page_1.pdf
F6	Mass:	https://47calc.com/doc/R47/Menus/R47v0_Menu_Mass_page_1.pdf
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1	FIX ○	
gF2	SCI ○	
gF3	ENG ○	
gF4	UNIT ○	
gF5	SIG ○	
gF6	ALL_3 ⊙	

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SYS.FL	System flags					
g-shift	CONV$_{HP}$ ▣	CONV$_{US}$ ◻	CPXj ◻	CPXmul ◻	CPXRES ▣	DENANY ◻
f-shift	AUTOFF ▣	AUTXEQ ◻	BASE$_{HP}$ ▣	BCD ◻	BOLD ◻	CARRY ◻
unshifted	1024^n ◻	3DPHYS ◻	3Dxyz ◻	ALPHA ◻	ALP.IN ◻	ASLIFT$_1$
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	1024^n ◻	Flag	Binary prefixes	SET for binary prefixes in UNIT display mode ; CLEAR for decimal prefixes in UNIT display mode ; Info : Binary prefixes designate powers of 1024, applicable to long integers (will be indicated by Z:) and reals in UNIT display mode	*Numeric input*	1024^n		CLEAR
F2	3DPHYS ◻	Flag	Physics or Math	SET for Physics conventions in spherical polar vectors ; CLEAR for Math conventions in spherical polar vectors ; Info : The notation convention is indicated by the TI subscript of the spherical polar vector : $_P$ for Physics, $_M$ for Math (determines ordering of vector elements, works on whole stack)	*Vector operations*	3DPHYS		CLEAR
F3	3Dxyz ◻	Flag	xyz or ijk vector display	SET for xyz (rθz) display of vectors ; CLEAR for ijk (rθk) display of vectors ; Info : Indicated by TI subscript of vector elements : $_{xyz}$ or $_{ijk}$	*Vector operations*	3Dxyz		CLEAR
F4	ALPHA ◻	Flag	Alpha Input Mode	SET for alpha input mode ; CLEAR for alpha input mode inactive ; SBI : A ; a ; *N*	*Text input*	ALPHA		CLEAR
F5	ALP.IN ◻	Flag	Alpha Entry	SET for alpha entry ; CLEAR for alpha entry inactive	*Text input*	ALP.IN		CLEAR
F6	$ASLIFT_1$	Flag (system)	Automatic Stack Lift	SET for automatic stack lift ; CLEAR for automatic stack lift inactive ; Info : SBI is SIM only ; SBI : SL	*Stack*	ASLIFT		SET
fF1	AUTOFF ◼	Flag	Automatic shutdown	SET for automatic shutdown ; CLEAR for automatic shutdown inactive ; Info : Automatic shutdown delay is 10 m	*System*	AUTOFF		SET
fF2	AUTXEQ ◻	Flag	Auto execute program	SET for auto execute program ; CLEAR for auto execute program inactive ; Info : Automatically starts program when calculator turns on	*Programming*	AUTXEQ		CLEAR
fF3	$BASE_{HP}$ ◼	Flag	Classic (HP) style base	SET for applying number base to the whole stack ; CLEAR for applyng number base to X only ; Info : Shortint values only	*Number bases*	$BASE_{HP}$		SET
fF4	BCD ◻	Flag	Binary coded decimal	SET for binary coded decimal (BCD) display of Long integer in #BASE Mode ; CLEAR for binary coded decimal display inactive ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD		CLEAR
fF5	BOLD ◻	Flag	Bold font mode	SET for bold font mode ; CLEAR for regular font mode	*User interface*	BOLD		CLEAR
fF6	CARRY ◻	Flag	Carry (bit)	SET for carry (bit) ; CLEAR for carry (bit) inactive ; Info : SBI $_c$ is shown if flag SBoc is SET ; SBI : $_c$	*Bits and bytes*	CARRY		CLEAR
gF1	$CONV_{HP}$ ◼	Flag	Classic (HP) conversions	SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons	*Unit conversions*	$CONV_{HP}$		SET
gF2	$CONV_{US}$ ◻	Flag	US or UK units	SET for US unit preference ; CLEAR for UK unit preference	*Unit conversions*	$CONV_{US}$		CLEAR
gF3	CPXj ◻	Flag	Complex j	SET for displaying j as the imaginary number ; CLEAR for displaying i as the imaginary number ; Info : i or j displayed in stack and on soft buttons	*Complex numbers*	CPXj		CLEAR
gF4	CPXmul ◻	Flag	Complex multiplier	SET for displaying ℂomplex multiplier ; CLEAR for not displaying ℂomplex multiplier ; Info : If CLEAR, trailing i or j is used ; complex multiplier is set by MULT×	*Complex numbers*	CPXmul		CLEAR
gF5	CPXRES ◼	Flag	Complex results	SET for ℂomplex results ; CLEAR for Real results only ; Info : CPXRES is auto-set when entering complex input ; SBI ℂ ; ℝ is shown if flag SBcr is SET ; SBI : ℂ ; ℝ	*Complex numbers*	CPXRES		SET
gF6	DENANY ◻	Flag	Denominator any	SET for any denominator (up to value set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] fF5 (DMXX)) in fraction display mode ; CLEAR for fixed denominator in fraction display mode ; Info : DENANY and DENFIX are linked (both cannot be SET at the same time) ; SBI [+×] is shown if flag SBfrac is SET ; SBI : [+×]	*Fractions*	DENANY		CLEAR

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SYS.FL	System flags					
g-shift	FRCYC ◻	GROW ◻	g.2Tp ◼	HOMEb ◻	HOME$_f^g$ ◼	HP12C ◻
f-shift	eRPN ◼	fg.FUL ◼	fg.GR ◻	fg.LIM ◻	FRACT ◻	FRCSRN ◻
unshifted	DENFIX ◻	dLrgLI ◼	DMY$_0$	dZ.0 ◻	ENDPMT$_1$	ENGOVR ◻
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_SYS-FL_page_3.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	DENFIX ◻	Flag	Denominator fixed	SET for fixed denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] f F5 (DMXX)) in fraction display mode ; CLEAR for any denominator in fraction display mode ; Info : DENFIX and DENANY are linked (both cannot be SET at the same time) ; SBI [+f] is shown if flag SBfrac is SET ; SBI : [+f]	*Fractions*	DENFIX		CLEAR
F2	dLrgLI ◙	Flag	Large Long integers display	SET for (large) Long integers to always display in large text ; CLEAR for (large) Long integers to display in small text ; Info : dLrgLI is overruled by dZ.0	*Display*	dLrgLI		SET
F3	DMY_0	Flag (system)	Day.month.year	SET for DD.MM.YYYY display mode ; CLEAR for DD.MM.YYYY display mode inactive ; Format : DD.MM.YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : DD.MM.YYYY	*Display*	DMY		CLEAR
F4	dZ.0 ◻	Flag	Display Long integers as Real	SET for displaying Long integers as Real ; CLEAR for not displaying Long integers as Real ; Info : dZ.0 overrules dLrgLI ; Prefix : Z : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "Z:" even if dZ.0 is CLEAR	*Integers*	dZ.0		CLEAR
F5	$ENDPMT_1$	Flag (system)	TVM end payments	SET for TVM end payments ; CLEAR for TVM begin payments ; Info : SBI END ; BEG is shown if flag SBtvm is SET ; SBI : END ; BEG	*Financial*	ENDPMT		SET
F6	ENGOVR ◻	Flag	Engineering/Scientific display large Real numbers	SET for displaying large Real numbers in engineering notation ; CLEAR for displaying large Real numbers in scientific notation	*Display*	ENGOVR		CLEAR
f F1	eRPN ◙	Flag	Entry RPN mode	SET for interactive Entry RPN mode ; CLEAR for interactive Entry RPN mode inactive ; Info : If eRPN is SET, in Numeric Input Mode, ENTER pushes the input value onto the stack, and if CLEAR, then it also duplicates X to Y ; without input or in Program Entry Mode, ENTER always duplicates X to Y ; only if eRPN is CLEAR, automatic stack lift is disabled after ENTER ; stack size SBI (8 or 4) is displayed in normal font if eRPN is SET and inverted if CLEAR ; SBI 8 or 4 is shown if flag SBss is SET ; SBI : 8 or 4	*Stack*	eRPN		SET
f F2	fg.FUL ◙	Flag	Menu f,g-highlighting Full	SET for menu f,g-highlighting full ; CLEAR for menu f,g-highlighting full inactive ; Info : fg.FUL and fg.LIM are linked (both cannot be SET at the same time)	*User interface*	fg.FUL		SET
f F3	fg.GR ◻	Flag	Menu f,g-highlighting Grey	SET for menu f,g-highlighting grey ; CLEAR for menu f,g-highlighting grey inactive	*User interface*	fg.GR		CLEAR
f F4	fg.LIM ◻	Flag	Menu f,g-highlighting Limited	SET for menu f,g-highlighting limited ; CLEAR for menu f,g-highlighting limited inactive ; Info : fg.LIM and fg.FUL are linked (both cannot be SET at the same time)	*User interface*	fg.LIM		CLEAR
f F5	FRACT ◻	Flag	Fractions mode	SET for fractions mode ; CLEAR for fractions mode inactive ; Info : FRACT and IRFRAC are linked (both cannot be SET at the same time) ; /n or /max denotes maximum denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] f F5 (DMXX)) ; prefixes < and > may be shown as needed for rational fractions ; also see flag IRFRAC ; SBI ≈ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]) ; SBI : a^b/n ; $^b/n$; [+≈]	*Fractions*	FRACT		CLEAR
f F6	FRCSRN ◻	Flag	Fraction show register name	SET for displaying register name in fractions mode ; CLEAR for not displaying register name in fractions mode ; Prefix : x, y, z, t < or = or > or ≈	*Fractions*	FRCSRN		CLEAR
g F1	FRCYC ◻	Flag	Fraction mode full cycle	SET for full cycle on key a b/c (g [.]) ; CLEAR for limited cycle on key a b/c (g [.]) ; Info : When FRCYC is SET full cycle is available, when CLEAR, flag PROPFR is excluded (used as is) and OFF state is included in cycle	*Fractions*	FRCYC		CLEAR
g F2	GROW ◻	Flag	Grow (matrix edit)	SET for grow (matrix edit) ; CLEAR for wrap (matrix edit) ; Info : SBI is shown if flag SBmx is SET ; SBI : wrap ; grow	*Matrix operations*	GROW		CLEAR
g F3	g.2Tp ◙	Flag	Double tap function keys	SET for double tap function keys for g-shift ; CLEAR for double tap function keys inactive ; Info : Blocked for navigation FN-keys (arrows) in editors	*User interface*	g.2Tp		SET

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF4	HOMEb ◻	Flag	HOME menu shown	SET for HOME menu shown ; CLEAR for HOME menu not shown ; Info : HOMEb and MyMb are linked (both cannot be SET at the same time) ; applies when all menus are exited using EXIT	*Customisation*	HOMEb		CLEAR
gF5	HOME$_f^g$ ◙	Flag	HOME menu f/g shortcut	SET for HOME menu activated by triple and longerpress f/g-shift ; CLEAR for HOME menu f/g shortcut inactive ; Info : HOME$_f^g$ and MyM$_f^g$ are linked (both cannot be SET at the same time) ; HOME$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	HOME$_f^g$		SET
gF6	HP12C ◻	Flag	HP12C standard precision	SET for HP12C standard precision of 2 decimals ; CLEAR for full R47 accuracy ; Info : The HP12C standard precision means that PMT is rounded to 2 decimals before amortisation is computed, so the schedule matches a printed bank statement	*Financial*	HP12C		CLEAR

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SYS.FL	System flags					
g-shift	MyMb ▣	MyM_F^g ◻	NUM ◻	NUM.IN ◻	OVERFL ◻	PFX.All ◻
f-shift	LEAD.0 ◻	$LOWBAT_0$	MDY_0	MNUp1 ▣	MONIT ▣	MULT× ▣
unshifted	IGN1ER ◻	$INTING_0$	IRFRAC ◻	$IRFR_0$	KEY_{A-F} ▣	KEY.LP ▣
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	IGN1ER ◻	Flag	Ignore one error	SET for calculator ignoring next error ; CLEAR for calculator not ignoring error(s) ; Info : IGN1ER is cleared subsequently	*Programming*	IGN1ER		CLEAR
F2	INTING$_0$	Flag (system)	Integrator running	SET for integrator running ; CLEAR for integrator not running	*Integrator*	INTING		CLEAR
F3	IRFRAC ◻	Flag	Irrational fractions mode	SET for irrational fractions mode ; CLEAR for irrational fractions mode inactive ; IRFRAC gives fractional results only if a simple fraction exists ; on battery power, matrices and vectors are ignored to prevent heavy calculations ; Info : IRFRAC and FRACT are linked (both cannot be SET at the same time) ; SBI ×I or ·I indicates that approximate multiples or fractions can be used, of the irrational numbers √2, √3, √5, √7, ϕ, π^{-2}, π^{-1}, √π, π, π^2, e^{-2}, e^{-1}, e and e^2 (with tolerance 10^{-24}) ; Prefix ≈ + <approximation> ; multiplication symbol SET for displaying multiplication symbol × ; CLEAR for displaying multiplication symbol · or SET for displaying multiplication symbol × ; CLEAR for displaying multiplication symbol · according to flag MULT× ; SBI ≈ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT]) ; SBI : a^b/c×I ; ^{b}/c×I ; [+≈]	*Fractions*	IRFRAC		CLEAR
F4	IRFR$_0$	Flag (system)	Irrational fractions mode preferred	SET for irrational fractions mode preferred ; CLEAR for irrational fractions mode not preferred ; Info : IRFR is SET by IRFRAC and CLEARed by FRACT to preserve state when toggling fraction modes using a b/c and .d	*Fractions*	IRFR		CLEAR
F5	KEY$_{A-F}$ ◼	Flag	A-F keys	SET for row 2 keys to enter digits A-F in #BASE Mode ; CLEAR for row 2 keys to work normally ; Info : Entering digits A-F switches the calculator to hexadecimal mode ; when KEY$_{A-F}$ is SET, the respective digit is included in the row 2 key's longpress preview cycle ; SBI : #KEY$_{A-F}$	*Number bases*	KEY$_{A-F}$		SET
F6	KEY.LP ◼	Flag	Longpress f and g shortcuts	SET for longpress shortcuts for f-shift and g-shift keys ; CLEAR for longpress f and g shortcuts inactive ; Info : KEY.LP pertains to R47v0 f g layout and R47v2 $_f^g$ g layout only and also enables longpress assignment to f-shift and g-shift keys	*User interface*	KEY.LP		SET
fF1	LEAD.0 ◻	Flag	Leading zeros	SET for leading zeros (shortint bases 2, 4, 8, 16) ; CLEAR for no leading zeros (shortint bases 2, 4, 8, 16)	*Display*	LEAD.0		CLEAR
fF2	LOWBAT$_0$	Flag (system)	Low Battery	SET for low battery voltage ; CLEAR for no low battery voltage ; Info : SBI 🪫 is shown if flag SBbatV is SET ; SBI : 🪫	*System*	LOWBAT		CLEAR
fF3	MDY$_0$	Flag (system)	Month/day/year	SET for MM/DD/YYYY display mode ; CLEAR for MM/DD/YYYY display mode inactive ; Format : MM/DD/YYYY ; Info : SBI is shown if flag SBdate is SET ; SBI : MM/DD/YYYY	*Display*	MDY		CLEAR
fF4	MNUp1 ◼	Flag	Menu opens on p1	SET for menu opens on p1 ; CLEAR for menu opens on page last used	*User interface*	MNUp1		SET
fF5	MONIT ◼	Flag	Iteration monitoring	SET for displaying iteration status ; CLEAR for not displaying iteration status ; Info : Pertains to executing programmable sums, solvers and integrator	*Status*	MONIT		SET
fF6	MULT× ◼	Flag	Multiplication symbol	SET for displaying multiplication symbol × ; CLEAR for displaying multiplication symbol · ; Info : Multiplication symbol is used in exponential and complex notation ; symbol may be displayed in annunciator(s) related to FRACT settings	*Display*	MULT×		SET
gF1	MyMb ◼	Flag	MyMenu shown	SET for MyMenu shown ; CLEAR for MyMenu not shown ; Info : MyMb and HOMEb are linked (both cannot be SET at the same time) ; applies when all menus are exited using EXIT	*Customisation*	MyMb		SET
gF2	MyM$_f^g$ ◻	Flag	MyMenu f/g shortcut	SET for MyMenu activated by triple and longerpress f/g-shift ; CLEAR for MyMenu f/g shortcut inactive ; Info : MyM$_f^g$ and HOME$_f^g$ are linked (both cannot be SET at the same time) ; MyM$_f^g$ pertains to layouts containing key [f/g] only and also enables longerpress assignment to this key	*Customisation*	MyM$_f^g$		CLEAR
gF3	NUM ◻	Flag	Numlock	SET for numlock ; CLEAR for numlock inactive ; SBI : *N*	*Numeric input*	NUM		CLEAR
gF4	NUM.IN ◻	Flag	Numeric entry	SET for numeric entry ; CLEAR for numeric entry inactive	*Numeric input*	NUM.IN		CLEAR

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF5	OVERFL ◻	Flag	Overflow	SET for overflow ; CLEAR for no overflow ; Info : SBI ° is shown if flag SBoc is SET ; SBI : °	*Bits and bytes*	OVERFL		CLEAR
gF6	PFX.All ◻	Flag	Show all SI prefixes	SET for showing full range of SI prefixes in UNIT display mode ; CLEAR for showing limited range of SI prefixes in UNIT display mode ; Info : Full range is 10^{-30} to 10^{30} ; limited range is 10^{-15} to 10^{15} ; not applicable when flag 1024^n is SET ; Ref : https://47calc.com/doc/R47/Reference/R47v0_UNIT_prefix.pdf	*Plotting*	PFX.All		CLEAR

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SYS.FL	System flags					
g-shift	PLvec ☐	PLxy:1 ☐	PLx.ax ☐	PLy.ax ☐	POLAR ☐	PROPFR ☒
f-shift	PLintg ☐	PLline ☒	PLnvec ☐	PLplus ☐	PLrms ☐	PLshad ☐
unshifted	PLbox ☒	PLcros ☐	PLcurve ☐	PLcxp ☐	PLdiff ☐	PLimp ☐
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p4	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	PLbox ▣	Flag	Box markers	SET for box markers ; CLEAR for box markers inactive ; Info : If PLbox is SET, PLcros and PLplus are CLEARed ; PLline is SET when all three curve markers are deselected	*Plotting*	PLbox		SET
F2	PLcros ◻	Flag	Cross markers	SET for cross markers ; CLEAR for cross markers inactive ; Info : If PLcros is SET, PLbox and PLplus are CLEARed ; PLline is SET when all three curve markers are deselected	*Plotting*	PLcros		CLEAR
F3	PLcurve ◻	Flag	[future] Curve smoothing	SET for [future] curve smoothing ; CLEAR for [future] curve smoothing inactive ; Info : Reserved for future use	*Plotting*	PLcurve		CLEAR
F4	PLcxp ◻	Flag	Complex plot	SET for ℂomplex plot ; CLEAR for ℂomplex plot inactive ; Info : PLcxp and PLimp are linked (both cannot be SET at the same time)	*Plotting*	PLcxp		CLEAR
F5	PLdiff ◻	Flag	Add differential curve	SET for adding the graphical point-to-point differential of the main graph ; CLEAR for not adding the differential curve ; Info : Δ Numerical slope is displayed	*Plotting*	PLdiff		CLEAR
F6	PLimp ◻	Flag	Plot imaginary part	SET for plotting imaginary part ; CLEAR for plotting real part ; Info : PLimp and PLcxp are linked (both cannot be SET at the same time)	*Plotting*	PLimp		CLEAR
fF1	PLintg ◻	Flag	Add integral curve	SET for adding the graphical integral curve, calculated from the point-to-point discrete integral ; CLEAR for not adding the integral curve ; Info : Vertical placement of the integral is at RMS of the graph points ; ∫◻ Trapezoid integral is displayed	*Plotting*	PLintg		CLEAR
fF2	PLline ▣	Flag	Draw line	SET for connecting graph points using line segments ; CLEAR for not connecting graph points using line segments ; Info : If PLline is CLEARed, PLbox may be SET if necessary (when no curve markers are selected)	*Plotting*	PLline		SET
fF3	PLnvec ◻	Flag	Clockwise vectors	SET for clockwise vectors ; CLEAR for clockwise vectors inactive ; Info : Treat coordinate pairs as navigation vectors, clockwise from the positive y-axis as reference ; PLnvec and PLvec are linked (both cannot be SET at the same time)	*Plotting*	PLnvec		CLEAR
fF4	PLplus ◻	Flag	Plus markers	SET for plus markers ; CLEAR for plus markers inactive ; Info : If PLplus is SET, PLbox and PLcros are CLEARed ; PLline is SET when all three curve markers are deselected	*Plotting*	PLplus		CLEAR
fF5	PLrms ◻	Flag	Add RMS curve	SET for adding the graphical root mean square curve, accumulated from left to right ; CLEAR for not adding the RMS curve ; Info : ■ Root mean square RMS is displayed	*Plotting*	PLrms		CLEAR
fF6	PLshad ◻	Flag	Shade curve	SET for shading the trapezoid integral from the graph points ; CLEAR for not shading the curve ; Info : ∫◻ Trapezoid integral is displayed	*Plotting*	PLshad		CLEAR
gF1	PLvec ◻	Flag	Anti-clockwise vectors	SET for anti-clockwise vectors ; CLEAR for anti-clockwise vectors inactive ; Info : Treat coordinate pairs as vectors, anti-clockwise from the positive x-axis as reference ; PLvec and PLnvec are linked (both cannot be SET at the same time)	*Plotting*	PLvec		CLEAR
gF2	PLxy:1 ◻	Flag	Forcing autoscale	SET for forcing autoscale on x- and y-axis to be the same ; CLEAR for not forcing autoscale on x- and y-axis to be the same	*Plotting*	PLxy:1		CLEAR
gF3	PLx.ax ◻	Flag	Autoscaling to show x-axis	SET for autoscaling to show x-axis ; CLEAR for not autoscaling to show x-axis	*Plotting*	PLx.ax		CLEAR
gF4	PLy.ax ◻	Flag	Autoscaling to show y-axis	SET for autoscaling to show y-axis ; CLEAR for not autoscaling to show y-axis	*Plotting*	PLy.ax		CLEAR
gF5	POLAR ◻	Flag	Polar notation	SET for polar notation ; CLEAR for rectangular notation ; Info : SBI ∟ ; ⊙ is shown if flag SBcpx is SET ; SBI : ∟ ; ⊙	*Complex and coordinates*	POLAR		CLEAR
gF6	PROPFR ▣	Flag	Proper fractions	SET for proper fractions (mixed fractions) ; CLEAR for improper fractions ; SBI : a^b/n ; $^b/n$; [+≈] ; a^b/c×I ; $^b/c$×I ; [+≈]	*Fractions*	PROPFR		SET

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SYS.FL	System flags					
g-shift	SBoc ▣	SBprn ▣	SBser ▣	SBshfR ◻	SBss ◻	SBstw ▣
f-shift	SBcpx ▣	SBcr ◻	SBdate ▣	SBfrac ▣	SBint ▣	SBmx ◻
unshifted	QUIET ◻	RP_{HP} ▣	$RUNTIM_{U}$	SBadm ▣	SBang ◻	SBbatV ◻
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p5	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	QUIET ☐	Flag	Quiet	SET for beeper disabled ; CLEAR for beeper enabled ; Info : Silences every sound source and clamps volume at both ends	*System*	QUIET		CLEAR
F2	RP_{HP} ☒	Flag	Classic (HP) Rect/Polar	SET for x : Re ; y : Im (RECT) ; r ; θ (POLAR) in X, Y ; CLEAR for y : Im ; x : Re (RECT) ; θ ; r (POLAR) in X, Y ; Info : RP_{HP} CLEAR conforms to the way the R47v0 deals with complex numbers	*Complex and coordinates*	RP_{HP}		SET
F3	$RUNTIM_0$	Flag (system)	Stopwatch running	SET for stopwatch running ; CLEAR for stopwatch not running ; Info : SBI ⏱ is shown if flag SBstw is SET ; SBI : ⏱	*Stopwatch*	RUNTIM		CLEAR
F4	SBadm ☒	Flag	Show degree symbol	SET for displaying degree symbol (°) in status bar ; CLEAR for not displaying degree symbol (°) in status bar ; Info : Setting flag SBang also sets SBadm ; clearing SBadm also clears flag SBang ; SBI : (°)	*Status*	SBadm		SET
F5	SBang ☐	Flag	Show angle symbol	SET for displaying angle symbol (∡) in status bar ; CLEAR for not displaying angle symbol (∡) in status bar ; Info : Setting flag SBang also sets SBadm ; clearing SBadm also clears flag SBang ; SBI : (∡)	*Status*	SBang		CLEAR
F6	SBbatV ☐	Flag	Show battery depletion	SET for displaying battery depletion (🪫) in status bar ; CLEAR for not displaying battery depletion (🪫) in status bar ; Info : If SBbatV is CLEAR, the regular icon (🪫) will show, but only when the battery is low (flag LOWBAT is SET) ; when SBbatV is SET the special battery symbol has length proportional to 2.054 V to 3.045 V ; SBI : (🪫)	*Status*	SBbatV		CLEAR
fF1	SBcpx ☒	Flag	Show complex mode	SET for displaying ℂomplex mode (Ł ; ⊙) in status bar ; CLEAR for not displaying ℂomplex mode (Ł ; ⊙) in status bar ; SBI : (Ł ; ⊙)	*Status*	SBcpx		SET
fF2	SBcr ☐	Flag	Show complex results	SET for displaying ℂomplex results (ℂ ; ℝ) in status bar ; CLEAR for not displaying ℂomplex results (ℂ ; ℝ) in status bar ; SBI : (ℂ ; ℝ)	*Status*	SBcr		CLEAR
fF3	SBdate ☒	Flag	Show date	SET for displaying date (CLK ; YY) in status bar ; CLEAR for not displaying date (CLK ; YY) in status bar ; Info : SBdate, SBtime and SBwoy are linked, only two out of three can be SET at most ; SBI : (CLK ; YY)	*Status*	SBdate		SET
fF4	SBfrac ☒	Flag	Show Fractions Mode and #BASE Mode	SET for displaying Fractions Mode and #BASE Mode (a^b/n ; $^b/n$; [+≈] ; $a^b/c×I$; $^b/c×I$; [+≈] ; #BASE ; $\#KEY_{A-F}$) in status bar ; CLEAR for not displaying Fractions Mode and #BASE Mode (a^b/n ; $^b/n$; [+≈] ; $a^b/c×I$; $^b/c×I$; [+≈] ; #BASE ; $\#KEY_{A-F}$) in status bar ; SBI : (a^b/n ; $^b/n$; [+≈] ; $a^b/c×I$; $^b/c×I$; [+≈] ; #BASE ; $\#KEY_{A-F}$)	*Status*	SBfrac		SET
fF5	SBint ☒	Flag	Show integer mode	SET for displaying integer mode (<w>:<m>) in status bar ; CLEAR for not displaying integer mode (<w>:<m>) in status bar ; Info : <w> in SBI indicates word size (menu BITSET) ; <m> in SBI indicates sign mode (menu BITSET) ; SBI : (<w>:<m>)	*Status*	SBint		SET
fF6	SBmx ☐	Flag	Show matrix mode	SET for displaying matrix mode (wrap ; grow) in status bar ; CLEAR for not displaying matrix mode (wrap ; grow) in status bar ; SBI : (wrap ; grow)	*Status*	SBmx		CLEAR
gF1	SBoc ☒	Flag	Show overflow/carry mode	SET for displaying overflow/carry mode (° ; $_c$) in status bar ; CLEAR for not displaying overflow/carry mode (° ; $_c$) in status bar ; SBI : (° ; $_c$)	*Status*	SBoc		SET
gF2	SBprn ☒	Flag	Show printing	SET for displaying printing (🖶) in status bar ; CLEAR for not displaying printing (🖶) in status bar ; SBI : (🖶)	*Status*	SBprn		SET
gF3	SBser ☒	Flag	Show serial I/O	SET for displaying serial I/O (⇕) in status bar ; CLEAR for not displaying serial I/O (⇕) in status bar ; SBI : (⇕)	*Status*	SBser		SET
gF4	SBshfR ☐	Flag	Show shift on the right	SET for displaying shift on the right (f ; g) in status bar ; CLEAR for displaying shift on the left (f ; g) in status bar ; SBI : (f ; g)	*Status*	SBshfR		CLEAR
gF5	SBss ☐	Flag	Show stack size	SET for displaying stack size (8 ; 4) in status bar ; CLEAR for not displaying stack size (8 ; 4) in status bar ; SBI : (8 ; 4)	*Status*	SBss		CLEAR
gF6	SBstw ☒	Flag	Show stopwatch running	SET for displaying stopwatch running (⏱) in status bar ; CLEAR for not displaying stopwatch running (⏱) in status bar ; SBI : (⏱)	*Status*	SBstw		SET

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SYS.FL	System flags					
g-shift	VMDISP$_0$	WRPEDG$_0$	WRPEND$_0$	YMD$_1$	αCAP$_0$	←DROP ◻
f-shift	SOLVING$_0$	SPCRES ◼	SSIZE8 ◼	TDM24 ◼	USB$_0$	USER ◻
unshifted	SBtime ◻	SBtvm ◼	SBwoy ◻	SH.4s ◻	SIGO ◼	SLOW ◻
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Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p6	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	SBtime ◻	Flag	Show time	SET for displaying time (HH24:MM ; HH:MMam/pm) in status bar ; CLEAR for not displaying time (HH24:MM ; HH:MMam/pm) in status bar ; Info : SBtime, SBdate and SBwoy are linked, only two out of three can be SET at most ; SBI : (HH24:MM ; HH:MMam/pm)	*Status*	SBtime		CLEAR
F2	SBtvm ◙	Flag	Show TVM mode	SET for displaying TVM mode (END ; BEG) in status bar ; CLEAR for not displaying TVM mode (END ; BEG) in status bar ; SBI : (END ; BEG)	*Status*	SBtvm		SET
F3	SBwoy ◻	Flag	Show Week of Year and day number	SET for displaying Week of Year and day number (Ww#-d#) in status bar ; CLEAR for not displaying Week of Year and day number (Ww#-d#) in status bar ; Info : SBwoy, SBdate and SBtime are linked, only two out of three can be SET at most ; SBI : (Ww#-d#)	*Status*	SBwoy		CLEAR
F4	SH.4s ◻	Flag	Shift time-out of 4s	SET for shift time-out of 4s ; CLEAR for shift time-out of 4s inactive ; Info : For layouts containing key [f/g] only	*User interface*	SH.4s		CLEAR
F5	SIG0 ◙	Flag	Apply SIG zeros	SET for applying SIG zeros ; CLEAR for not applying SIG zeros ; Info : 'Apply SIG zeros' means displaying zeros for the integer part and trailing zeros for the fractional part ; zeros are required for the strict interpretation of SIG as implemented in prior C47/C43 and WP34S ; if SIG0 is CLEAR, SIG may be understood as 'maximum digits' and displays the resulting value in a more commonly used way	*Display*	SIG0		SET
F6	SLOW ◻	Flag	Slow mode	SET for slow mode ; CLEAR for slow mode inactive ; Info : Slow mode limits battery drain	*System*	SLOW		CLEAR
fF1	SOLVING$_0$	Flag (system)	Solving	SET for solver running ; CLEAR for solver not running	*Solver*	SOLVING		CLEAR
fF2	SPCRES ◙	Flag	Special results	SET for special results ; CLEAR for special results inactive ; Info : Special results are: infinity (±∞) and not-a-number (NaN), an error will not occur for such values when SPCRES is SET ; also, ±0. may be used	*Mathematics*	SPCRES		SET
fF3	SSIZE8 ◙	Flag	Stack Size 8	SET for 8 register stack ; CLEAR for 4 register stack ; Info : SBI 8 ; 4 is shown if flag SBss is SET ; SBI : 8 ; 4	*Stack*	SSIZE8		SET
fF4	TDM24 ◙	Flag	Time display 24h	SET for 24h time display ; CLEAR for 12h time display ; Format : HH24:MM ; HH:MMam/pm ; Info : SBI is shown if flag SBtime is SET ; SBI : HH24:MM ; HH:MMam/pm	*Display*	TDM24		SET
fF5	USB$_0$	Flag (system)	USB Power	SET for calculator running on USB power ; CLEAR for calculator running on battery power ; SBI : ψ	*System*	USB		CLEAR
fF6	USER ◻	Flag	USER mode	SET for USER mode ; CLEAR for Normal Mode ; SBI : U	*Customisation*	USER		CLEAR
gF1	VMDISP$_0$	Flag (system)	Variable menu displayed	SET for variable menu displayed ; CLEAR for variable menu not displayed	*Programming*	VMDISP		CLEAR
gF2	WRPEDG$_0$	Flag (system)	Wrap edge	SET for wrap edge ; CLEAR for wrap edge inactive	*Matrix operations*	WRPEDG		CLEAR
gF3	WRPEND$_0$	Flag (system)	Wrap end	SET for wrap end ; CLEAR for wrap end inactive	*Matrix operations*	WRPEND		CLEAR
gF4	YMD$_1$	Flag (system)	Year-month-day	SET for YYYY-MM-DD display mode ; CLEAR for YYYY-MM-DD display mode inactive ; Format : YYYY-MM-DD ; Info : SBI is shown if flag SBdate is SET ; SBI : YYYY-MM-DD	*Display*	YMD		SET
gF5	αCAP$_0$	Flag (system)	Alpha capslock	SET for alpha capslock ; CLEAR for alpha capslock inactive ; SBI : A ; a	*Text input*	αCAP		CLEAR
gF6	←DROP ◻	Flag	[←] executes DROPx or CLX	SET for [←] executing DROPx (when not in NIM) ; CLEAR for [←] executing CLX (when not in NIM)	*User interface*	←DROP		CLEAR

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SYS.FL	System flags					
g-shift						
f-shift						
unshifted	🖶ACT$_0$	🖶EN ◻	🖶NORM ◻	🖶TRACE ◻		
Page 7	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_t_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf
Ref 2 https://47calc.com/doc/Application%20Notes/AN0028_C47_R47_JM_Configurability_Tour.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p7	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F1	🖶ACT$_0$	Flag (system)	Print port active	SET for infrared print port active ; CLEAR for infrared print port inactive ; Info : If flag 🖶ACT is SET, the infrared port is enabled ; if CLEAR, the infrared port is disabled	*Printing*	🖶ACT		CLEAR
F2	🖶EN ◻	Flag	Printing enabled	SET for printing enabled ; CLEAR for printing disabled	*Printing*	🖶EN		CLEAR
F3	🖶NORM ◻	Flag	Printer mode Normal/Trace	SET for printer mode Normal (flag 🖶TRACE is CLEAR) or printer mode Stack trace (flag 🖶TRACE is SET) ; CLEAR for printer mode Manual (flag 🖶TRACE is CLEAR) or printer mode Trace (flag 🖶TRACE is SET) ; Info : There are four print modes : MAN, NORM, TRACE and STRACE, which are set by two flags : 🖶TRACE and 🖶NORM	*Printing*	🖶NORM		CLEAR
F4	🖶TRACE ◻	Flag	Printer mode Trace/Stack trace	SET for printer mode Trace (flag 🖶NORM is CLEAR) or printer mode Stack trace (flag 🖶NORM is SET) ; CLEAR for printer mode Manual (flag 🖶NORM is CLEAR) or printer mode Normal (flag 🖶NORM is SET) ; Info : There are four print modes : MAN, NORM, TRACE and STRACE, which are set by two flags : 🖶TRACE and 🖶NORM	*Printing*	🖶TRACE		CLEAR
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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t:	Student's t distribution					
g-shift	STO$_M$ ν					
f-shift						
unshifted	$t_p(x)$		$t_{\triangle}(x)$	$t_{\triangle}(x)$		$t^{-1}(p)$
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Tam_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	t:	MENU	Student's t distribution	Student's t probability distribution (continuous) ; TI : RegM = ν =	*Probability (real)*		t:	
F1	$t_p(x)$	Function (monadic)	Student's t pdf	Student's t probability density function	*Probability (real)*		$t_p(x)$	
F2								
F3	$t_{\triangle}(x)$	Function (monadic)	Student's t cdf (lower)	Student's t cumulative distribution (lower tail)	*Probability (real)*		$t_{\triangle}(x)$	
F4	$t_{\triangle}(x)$	Function (monadic)	Student's t cdf (upper)	Student's t cumulative distribution (upper tail)	*Probability (real)*		$t_{\triangle}(x)$	
F5								
F6	$t^{-1}(p)$	Function (monadic)	Student's t qf (inverse)	Student's t inverse cumulative distribution (quantile)	*Probability (real)*		$t^{-1}(p)$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M ν	Command	Store ν in M	Store parameter ν : degrees of freedom in register M ; Split screen : RegM = ν =	*Probability (real)*			
gF2								
gF3								
gF4								
gF5								
gF6								

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Tam	TAM mode (general)					
g-shift						REG
f-shift						
unshifted	→	VAR	X	Y	Z	T
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamAlpha_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Tam	MENU (TAM)	TAM mode (general)	Transient Alpha Mode is activated for trailing input (general) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; Tam menu is typically activated by VIEW on f[0]	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	Tam	Link
F1	→	
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamAlpha	TAM mode (alpha)					
g-shift	CAPS ▣	NUM ◻	$^{SUP}_{SUB}$ ◻	USER ◻		
f-shift	Myα					
unshifted	A...Ω	αMath	αMisc	αINTL	←	→
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamCmp_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamAlpha	MENU (TAM)	TAM mode (alpha)	Transient Alpha Mode is activated for trailing input (alpha) ; Shortcut : Activated from TAM menus by α (f[XEQ]) or TAM [XEQ] ; Info : Alpha Input Mode is opened in UPPERCASE for labels, lowercase for variables ; menu CAT [ALPHA] is available on keyboard alpha f[+] ; alpha g-shift characters can also be reached from alpha longpress keyboard	*Trailing input*			
F1	A...Ω	MENU	ALPHA...OMEGA	Uppercase Greek characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		A...Ω	
F2	αMath	MENU	Alpha Math	Mathematical symbols ; Info : Single character selection	*Characters*		αMath	
F3	αMisc	MENU	Alpha miscellaneous	Special characters ; Info : Single character selection	*Characters*		αMisc	
F4	αINTL	MENU	Alpha international	Uppercase international characters ; Info : Lowercase menu via [↓] ; single character selection	*Characters*		αINTL	
F5	←	Arrow	Cursor left	Move cursor left	*Text input*			
F6	→	Arrow	Cursor right	Move cursor right	*Text input*			
fF1	Myα	MENU	MyAlpha	User menu to quickly access user selected special characters ; all buttons are user assignable ('riveted' look) ; initially unpopulated ; reset using Myα.R ; Shortcut : alpha long [EXIT] ; EIM long [EXIT] ; alpha long [<g>] (because KEY.LP is SET ; also available in alpha mode of PEM)	*Customisation*		Myα	
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	CAPS ▣	Setting	Alpha capslock	Switch on alpha capslock ; not programmable ; Shortcut : alpha f[↑] / alpha f[↓] ; Info : sets initial case of menu A...Ω/α...ω and αINTL/αintl ; toggling alpha capslock clears Numlock ; SBI : A ; a	*Text input*	αCAP		ON
gF2	NUM ◻	Setting	Numlock	Switch on numlock ; not programmable - in PEM, use flag NUM ; Shortcut : alpha f[↑] / alpha f[↓] ; SBI : *N*	*Numeric input*	NUM		OFF
gF3	$^{SUP}{}_{SUB}$ ◻	Setting (cyclic)	Normal-super-subscript	Cycle normal-super-subscript (locking) ; Shortcut : alpha g[↑] / alpha g[↓] ; Info : button shows $^{SUP}{}_{SUB}$; α^{SUP} ; α_{SUB} ; SBI : $_{A}A^{A}$; $_{a}a^{a}$; $_{N}N^{N}$	*Text input*			Normal
gF4	USER ◻	Setting	USER mode	Switch on USER mode ; not programmable - in PEM, use flag USER ; Info : To assign USER to a key or button, use ASN (g[DRG]) and spell the name as 'USER' ; during assignment, pressing USER (f[DRG]) opens MyMenu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Assignment.pdf ; SBI : U	*Customisation*	USER		OFF
gF5								
gF6								

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p1	TamAlpha	Link
F1	A...Ω	https://47calc.com/doc/R47/Menus/R47v0_Menu_Alpha-Omega_page_1.pdf
F2	αMath	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMATH_page_1.pdf
F3	αMisc	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaMisc_page_1.pdf
F4	αINTL	https://47calc.com/doc/R47/Menus/R47v0_Menu_alphaINTL_page_1.pdf
F5	←	
F6	→	
fF1	Myα	https://47calc.com/doc/R47/Menus/R47v0_Menu_MyAlpha_page_1.pdf
fF2		
fF3		
fF4		
fF5		
fF6		
gF1	CAPS ▣	
gF2	NUM □	
gF3	$^{SUP}_{SUB}$ □	
gF4	USER □	
gF5		
gF6		

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TamCmp	TAM mode (compare)					
g-shift						REG
f-shift	0.	1.				
unshifted	→	VAR	X	Y	Z	T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamFlag_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamCmp	MENU (TAM)	TAM mode (compare)	Transient Alpha Mode is activated for trailing input (compare) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamCmp menu is typically activated by x= ? on [TEST.1]F3	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
fF1	0.	Command (TAM)	Real zero	Presented in menu TamCmp for comparisons (e.g. x< ?) to quickly enter 0.	*Trailing input*			
fF2	1.	Command (TAM)	Real one	Presented in menu TamCmp for comparisons (e.g. x< ?) to quickly enter 1.	*Trailing input*			
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	TamCmp	Link
F1	→	
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1	0.	
fF2	1.	
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamFlag	TAM mode (flag)					
g-shift	BCD ☐	KEY$_{A-F}$ ☒	LEAD.0 ☐	OVERFL ☐	CARRY ☐	FLG
f-shift						
unshifted	→	SYS.FL	X	Y	Z	T
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamIndirect_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamFlag	MENU (TAM)	TAM mode (flag)	Transient Alpha Mode is activated for trailing input (flag) ; Info : Indirection (→) activates TamIndirect ; TamFlag menu is typically activated by SF on [FLAG.1] F1	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	SYS.FL	MENU (ASM)	System flags	Presented in menu TamFlag for commands accessing system flags ; Info : Type characters 1-2 to search ; If SYS.FL is accessed from CAT.MENUS, soft buttons return flag status, otherwise toggle flag status ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_named.pdf	*Flags*		SYS.FL	
F3	X	EasyAccess (TAM)	Flag X	Easy access to Flag X (100)	*Trailing input*			
F4	Y	EasyAccess (TAM)	Flag Y	Easy access to Flag Y (101)	*Trailing input*			
F5	Z	EasyAccess (TAM)	Flag Z	Easy access to Flag Z (102)	*Trailing input*			
F6	T	EasyAccess (TAM)	Flag T	Easy access to Flag T (103)	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	BCD ◻	Flag	Binary coded decimal	SET for binary coded decimal (BCD) display of Long integer in #BASE Mode ; CLEAR for binary coded decimal display inactive ; Info : If menu BASE is open (#BASE Mode), BCD is displayed with subscript digits and followed by subscript $_{bcd}$	*Bits and bytes*	BCD		CLEAR
gF2	KEY$_{A-F}$ ◙	Flag	A-F keys	SET for row 2 keys to enter digits A-F in #BASE Mode ; CLEAR for row 2 keys to work normally ; Info : Entering digits A-F switches the calculator to hexadecimal mode ; when KEY$_{A-F}$ is SET, the respective digit is included in the row 2 key's longpress preview cycle ; SBI : #KEY$_{A-F}$	*Number bases*	KEY$_{A-F}$		SET
gF3	LEAD.0 ◻	Flag	Leading zeros	SET for leading zeros (shortint bases 2, 4, 8, 16) ; CLEAR for no leading zeros (shortint bases 2, 4, 8, 16)	*Display*	LEAD.0		CLEAR
gF4	OVERFL ◻	Flag	Overflow	SET for overflow ; CLEAR for no overflow ; Info : SBI ^{o} is shown if flag SBoc is SET ; SBI : ^{o}	*Bits and bytes*	OVERFL		CLEAR
gF5	CARRY ◻	Flag	Carry (bit)	SET for carry (bit) ; CLEAR for carry (bit) inactive ; Info : SBI $_{c}$ is shown if flag SBoc is SET ; SBI : $_{c}$	*Bits and bytes*	CARRY		CLEAR
gF6	FLG	MENU (TAM)	TAM (flag)	Presented in menu TamFlag to quickly select lettered flags ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Flags_p1.pdf	*Trailing input*			

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p1	TamFlag	Link
F1	→	
F2	SYS.FL	https://47calc.com/doc/R47/Menus/R47v0_Menu_SYS-FL_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1	BCD ☐	
gF2	KEY$_{A-F}$ ☒	
gF3	LEAD.0 ☐	
gF4	OVERFL ☐	
gF5	CARRY ☐	
gF6	FLG	https://47calc.com/doc/R47/Menus/R47v0_Menu_FLG_page_1.pdf

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TamIndirect	TAM mode (indirect)					
g-shift						REG
f-shift						
unshifted		VAR	X	Y	Z	T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamKey_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamIndirect	MENU (TAM)	TAM mode (indirect)	Transient Alpha Mode is activated for trailing input (indirect) ; Shortcut : Activated from TAM menus by Indirection (→) ; α (f[XEQ]) or TAM [XEQ] activates TamAlpha	*Trailing input*			
F1								
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	TamIndirect	Link
F1		
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamKey	TAM mode (KEY)					
g-shift	13	14	15	16	17	18
f-shift	7	8	9	10	11	12
unshifted	1	2	3	4	5	6
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamIndirect_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamLabel_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamKey	MENU (TAM)	TAM mode (KEY)	Transient Alpha Mode is activated for trailing input (KEYG, KEYX) ; Info : TamKey menu is typically activated by	*Trailing input*			
F1	1	Button (black)	Button 1	Soft button 1 for selection by KEYG or KEYX command	*Programming*			
F2	2	Button (black)	Button 2	Soft button 2 for selection by KEYG or KEYX command	*Programming*			
F3	3	Button (black)	Button 3	Soft button 3 for selection by KEYG or KEYX command	*Programming*			
F4	4	Button (black)	Button 4	Soft button 4 for selection by KEYG or KEYX command	*Programming*			
F5	5	Button (black)	Button 5	Soft button 5 for selection by KEYG or KEYX command	*Programming*			
F6	6	Button (black)	Button 6	Soft button 6 for selection by KEYG or KEYX command	*Programming*			
fF1	7	Button (black)	Button 7	Soft button 7 for selection by KEYG or KEYX command	*Programming*			
fF2	8	Button (black)	Button 8	Soft button 8 for selection by KEYG or KEYX command	*Programming*			
fF3	9	Button (black)	Button 9	Soft button 9 for selection by KEYG or KEYX command	*Programming*			
fF4	10	Button (black)	Button 10	Soft button 10 for selection by KEYG or KEYX command	*Programming*			
fF5	11	Button (black)	Button 11	Soft button 11 for selection by KEYG or KEYX command	*Programming*			
fF6	12	Button (black)	Button 12	Soft button 12 for selection by KEYG or KEYX command	*Programming*			
gF1	13	Button (black)	Button 13	Soft button 13 for selection by KEYG or KEYX command	*Programming*			
gF2	14	Button (black)	Button 14	Soft button 14 for selection by KEYG or KEYX command	*Programming*			
gF3	15	Button (black)	Button 15	Soft button 15 for selection by KEYG or KEYX command	*Programming*			
gF4	16	Button (black)	Button 16	Soft button 16 for selection by KEYG or KEYX command	*Programming*			
gF5	17	Button (black)	Button 17	Soft button 17 for selection by KEYG or KEYX command	*Programming*			
gF6	18	Button (black)	Button 18	Soft button 18 for selection by KEYG or KEYX command	*Programming*			

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TamLabel	TAM mode (label)					
g-shift	g	h	i	j	k	l
f-shift	a	b	c	d	e	f
unshifted	→	PROG	:	D	E	F
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamKey_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamLblOnly_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamLabel	MENU (TAM)	TAM mode (label)	Transient Alpha Mode is activated for trailing input (label) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; Colon button (:) activates TamLocalLabel ; TamLabel menu is typically activated by LBL on [P.FN.1]F1 ; keyboard shortcuts {A}, {B}, {C}, {D}, {E}, {F}, {G}, {H}, {I}, {J}, {K}, {L} are available while menu TamLabel is open ([x^2] = {A}, [$\sqrt{x}$] = {B}, ..., [CHS] = {L})	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	PROG	MENU (TAM, ASM)	TAM (program)	Presented in TAM menus for commands accessing global or local named labels ; TAM : CAT.PROGS.* menu ; Info : Type characters 1-2 to search ; open menu PROG e.g. from button : on [TamLabel.1]F3 to activate menu TamLocalLabel, then menu PROG, to find local labels (if in scope)	*Trailing input*		PROG	
F3	:	Symbol	Colon button	Special colon button on (e.g.) [TamLabel.1]F3 to create or specify a local named label for LBL, GTO or XEQ ; TAM : LBL, GTO or XEQ :__ TamLocalLabel menu	*Trailing input*			
F4	D	EasyAccess (TAM)	Local label D	Easy access to local label D ; Shortcut : LBL {D}	*Trailing input*			
F5	E	EasyAccess (TAM)	Local label E	Easy access to local label E ; Shortcut : LBL {E}	*Trailing input*			
F6	F	EasyAccess (TAM)	Local label F	Easy access to local label F ; Shortcut : LBL {F}	*Trailing input*			
fF1	a	EasyAccess (TAM)	Local label a	Easy access to local label a	*Trailing input*			
fF2	b	EasyAccess (TAM)	Local label b	Easy access to local label b	*Trailing input*			
fF3	c	EasyAccess (TAM)	Local label c	Easy access to local label c	*Trailing input*			
fF4	d	EasyAccess (TAM)	Local label d	Easy access to local label d	*Trailing input*			
fF5	e	EasyAccess (TAM)	Local label e	Easy access to local label e	*Trailing input*			
fF6	f	EasyAccess (TAM)	Local label f	Easy access to local label f	*Trailing input*			
gF1	g	EasyAccess (TAM)	Local label g	Easy access to local label g	*Trailing input*			
gF2	h	EasyAccess (TAM)	Local label h	Easy access to local label h	*Trailing input*			
gF3	i	EasyAccess (TAM)	Local label i	Easy access to local label i	*Trailing input*			
gF4	j	EasyAccess (TAM)	Local label j	Easy access to local label j	*Trailing input*			
gF5	k	EasyAccess (TAM)	Local label k	Easy access to local label k	*Trailing input*			
gF6	l	EasyAccess (TAM)	Local label l	Easy access to local label l	*Trailing input*			

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p1	TamLabel	Link
F1	→	
F2	PROG	https://47calc.com/doc/R47/Menus/R47v0_Menu_PROG_page_1.pdf
F3	:	
F4	D	
F5	E	
F6	F	
f F1	a	
f F2	b	
f F3	c	
f F4	d	
f F5	e	
f F6	f	
g F1	g	
g F2	h	
g F3	i	
g F4	j	
g F5	k	
g F6	l	

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TamLblOnly	TAM mode (label only)					
g-shift						
f-shift						
unshifted	→	PROG	:			
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamLabel_page_1.pdf
Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamLocalLabel_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamLblOnly	MENU (TAM)	TAM mode (label only)	Transient Alpha Mode is activated for trailing input (label only) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamLblOnly menu is typically activated by PGMINT on [ADV.1]fF4	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	PROG	MENU (TAM, ASM)	TAM (program)	Presented in TAM menus for commands accessing global or local named labels ; TAM : CAT.PROGS.* menu ; Info : Type characters 1-2 to search ; open menu PROG e.g. from button : on [TamLabel.1]F3 to activate menu TamLocalLabel, then menu PROG, to find local labels (if in scope)	*Trailing input*		PROG	
F3	:	Symbol	Colon button	Special colon button on (e.g.) [TamLabel.1]F3 to create or specify a local named label for LBL, GTO or XEQ ; TAM : LBL, GTO or XEQ :__ TamLocalLabel menu	*Trailing input*			
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	TamLblOnly	Link
F1	→	
F2	PROG	https://47calc.com/doc/R47/Menus/R47v0_Menu_PROG_page_1.pdf
F3	:	
F4		
F5		
F6		
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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TamLocalLabel	TAM mode (local label)					
g-shift						
f-shift						
unshifted		PROG	α			
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamMenu_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamLocalLabel	MENU (TAM)	TAM mode (local label)	Transient Alpha Mode is activated for trailing input (local label) ; Shortcut : Activated from TAM menus by Colon button (:) ; alpha button (α) activates TamAlpha	*Trailing input*			
F1								
F2	PROG	MENU (TAM, ASM)	TAM (program)	Presented in TAM menus for commands accessing global or local named labels ; TAM : CAT.PROGS.* menu ; Info : Type characters 1-2 to search ; open menu PROG e.g. from button : on [TamLabel.1]F3 to activate menu TamLocalLabel, then menu PROG, to find local labels (if in scope)	*Trailing input*		PROG	
F3	α	Symbol	alpha button	Special alpha button on [TamLocalLabel.1]F3 to enter a local label name for LBL, GTO or XEQ ; TAM : LBL, GTO or XEQ :. TamAlpha menu ; the label will be entered as :<label>:	*Trailing input*			
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	TamLocalLabel	Link
F1		
F2	PROG	https://47calc.com/doc/R47/Menus/R47v0_Menu_PROG_page_1.pdf
F3	α	
F4		
F5		
F6		
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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TamMenu	TAM mode					
g-shift						
f-shift						
unshifted	→	MENU	→X	→Y	→Z	→T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamNonReg_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamMenu	MENU (TAM)	TAM mode	Transient Alpha Mode is activated for trailing input (menu selection) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamMenu menu is typically activated by OPENM on [P.FN2.1]fF4	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	MENU	MENU (ASM)	Menu	Presented in menu TamMenu for commands accessing menus ; Info : Type characters 1-2 to search	*Trailing input*		MENU	
F3	→X	Command (TAM)	Indirect X	Presented in TAM menus for commands accessing indirect input using stack register X	*Trailing input*			
F4	→Y	Command (TAM)	Indirect Y	Presented in TAM menus for commands accessing indirect input using stack register Y	*Trailing input*			
F5	→Z	Command (TAM)	Indirect Z	Presented in TAM menus for commands accessing indirect input using stack register Z	*Trailing input*			
F6	→T	Command (TAM)	Indirect T	Presented in TAM menus for commands accessing indirect input using stack register T	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	TamMenu	Link
F1	→	
F2	MENU	https://47calc.com/doc/R47/Menus/R47v0_Menu_MENU_page_1.pdf
F3	→X	
F4	→Y	
F5	→Z	
F6	→T	
f F1		
f F2		
f F3		
f F4		
f F5		
f F6		
g F1		
g F2		
g F3		
g F4		
g F5		
g F6		

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TamNonReg	TAM mode (value)					
g-shift						
f-shift						
unshifted	→		→X	→Y	→Z	→T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamNonRegMax_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamNonReg	MENU (TAM)	TAM mode (value)	Transient Alpha Mode is activated for trailing input (value) ; Info : Indirection (→) activates TamIndirect ; TamNonReg menu is typically activated by DSP on [Prefix.1] fF6	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2								
F3	→X	Command (TAM)	Indirect X	Presented in TAM menus for commands accessing indirect input using stack register X	*Trailing input*			
F4	→Y	Command (TAM)	Indirect Y	Presented in TAM menus for commands accessing indirect input using stack register Y	*Trailing input*			
F5	→Z	Command (TAM)	Indirect Z	Presented in TAM menus for commands accessing indirect input using stack register Z	*Trailing input*			
F6	→T	Command (TAM)	Indirect T	Presented in TAM menus for commands accessing indirect input using stack register T	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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TamNonRegMax	TAM mode (DMX)					
g-shift						
f-shift						
unshifted	→	DMXmax	→X	→Y	→Z	→T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamNonRegTrk_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamNonRegMax	MENU (TAM)	TAM mode (DMX)	Transient Alpha Mode is activated for trailing input (DMX), allows selection of DMXmax ; Info : Indirection (→) activates TamIndirect ; TamNonRegMax menu is typically activated by DMX on [DISP.1]fF4	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	DMXmax	Command	Set DMX to maximum	Set DMX to maximum value (32500, stored as 0) ; Info : SBI /max is shown if flag SBfrac is SET ; SBI : /max	*Trailing input*		DMXmax	64
F3	→X	Command (TAM)	Indirect X	Presented in TAM menus for commands accessing indirect input using stack register X	*Trailing input*			
F4	→Y	Command (TAM)	Indirect Y	Presented in TAM menus for commands accessing indirect input using stack register Y	*Trailing input*			
F5	→Z	Command (TAM)	Indirect Z	Presented in TAM menus for commands accessing indirect input using stack register Z	*Trailing input*			
F6	→T	Command (TAM)	Indirect T	Presented in TAM menus for commands accessing indirect input using stack register T	*Trailing input*			
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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TamNonRegTrk	TAM mode (track)					
g-shift						
f-shift		YYoff				
unshifted	→	YYtrack	→X	→Y	→Z	→T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamNorm_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamNonRegTrk	MENU (TAM)	TAM mode (track)	Transient Alpha Mode is activated for trailing input (two digit year and century tracking), allows setting YYtrack or YYoff ; Info : Indirection (→) activates TamIndirect ; TamNonRegTrk menu is typically activated by YY on [CLK.1] g F6	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	YYtrack	Command	Two digit year tracking	Switch on two digit year conversion tracking to imply the latest century <cc> used in function .d and set the limit for YY to <cc99> to use the full range of years ; Info : Displayed in button for .d ; YY with subscript "T" as .d ; $YY_{cc99\ t}$	*Time functions*		YYtrack	
F3	→X	Command (TAM)	Indirect X	Presented in TAM menus for commands accessing indirect input using stack register X	*Trailing input*			
F4	→Y	Command (TAM)	Indirect Y	Presented in TAM menus for commands accessing indirect input using stack register Y	*Trailing input*			
F5	→Z	Command (TAM)	Indirect Z	Presented in TAM menus for commands accessing indirect input using stack register Z	*Trailing input*			
F6	→T	Command (TAM)	Indirect T	Presented in TAM menus for commands accessing indirect input using stack register T	*Trailing input*			
f F1								
f F2	YYoff	Command	Two digit year off	Switch off two digit year conversion in function .d ; Info : Displayed in button for YY with subscript "off" as YY_{off}	*Time functions*		YYoff	
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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TamNorm	TAM mode (norm)					
g-shift						
f-shift		NNZ	RNORM	CNORM	ENORM	
unshifted	→	∞	→X	→Y	→Z	→T
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamNorm	MENU (TAM)	TAM mode (norm)	Transient Alpha Mode is activated for trailing input (norm) ; Info : Indirection (→) activates TamIndirect ; TamNorm menu is typically activated by $\|x\|_p$ on [MATX.2] f F1	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	∞	EasyAccess (TAM)	Infinity	Special infinity button on [TamNorm.1] F2 to enter parameter value ∞	*Trailing input*			
F3	→X	Command (TAM)	Indirect X	Presented in TAM menus for commands accessing indirect input using stack register X	*Trailing input*			
F4	→Y	Command (TAM)	Indirect Y	Presented in TAM menus for commands accessing indirect input using stack register Y	*Trailing input*			
F5	→Z	Command (TAM)	Indirect Z	Presented in TAM menus for commands accessing indirect input using stack register Z	*Trailing input*			
F6	→T	Command (TAM)	Indirect T	Presented in TAM menus for commands accessing indirect input using stack register T	*Trailing input*			
f F1								
f F2	NNZ	Function (monadic)	Number of non-zeros	Number of non-zeros of vector or matrix in X : $\|x\|_0 = \Sigma_i\Sigma_j \mathbb{I}(a_{ij}\neq 0)$, where $\mathbb{I}$ is the indicator function, 1 if true, 0 if false ; Info : If NNZ is selected from menu [TamNorm.1] f F2, it enters $\|x\|_p$ with parameter 0 : Number of non-zeros of vector or matrix in X : $\|x\|_0 = \Sigma_i\Sigma_j \mathbb{I}(a_{ij}\neq 0)$, where $\mathbb{I}$ is the indicator function, 1 if true, 0 if false	*Matrix operations*		NNZ	
f F3	RNORM	Function (monadic)	Row or Maximum norm	Maximum row sum of absolute element values of a matrix in X : $\|x\|_\infty = \max_i\Sigma_j\|a_{ij}\|$; Info : If RNORM is selected from menu [TamNorm.1] f F3, it enters $\|x\|_p$ with parameter ∞ : Maximum row sum of absolute element values of a matrix in X : $\|x\|_\infty = \max_i\Sigma_j\|a_{ij}\|$	*Matrix operations*		RNORM	
f F4	CNORM	Function (monadic)	Column or Manhattan norm	Maximum column sum of absolute element values of a matrix in X : $\|x\|_1 = \max_j\Sigma_i\|a_{ij}\|$; Info : If CNORM is selected from menu [TamNorm.1] f F4, it enters $\|x\|_p$ with parameter 1 : Maximum column sum of absolute element values of a matrix in X : $\|x\|_1 = \max_j\Sigma_i\|a_{ij}\|$	*Matrix operations*		CNORM	
f F5	ENORM	Function (monadic)	Euclidean or Frobenius norm	Euclidean magnitude of a vector in X or Frobenius norm of a matrix in X : $\|x\|_2 = \sqrt{\Sigma_i\Sigma_j\|a_{ij}\|^2}$; Info : If ENORM is selected from menu [TamNorm.1] f F5, it enters $\|x\|_p$ with parameter 2 : Euclidean magnitude of a vector in X or Frobenius norm of a matrix in X : $\|x\|_2 = \sqrt{\Sigma_i\Sigma_j\|a_{ij}\|^2}$	*Matrix operations*		ENORM	
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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TamRcl	TAM mode (recall)					
g-shift	...EL	...IJ	...VEL$_1$	...VEL$_2$	...VEL$_3$	REG
f-shift	Config	Stack	...VEL$_{nn}$		...Min	...Max
unshifted	→	VAR	X	Y	Z	T
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamRclTVM_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamRcl	MENU (TAM)	TAM mode (recall)	Transient Alpha Mode is activated for trailing input (recall) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamRcl menu is typically activated by [RCL]	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
fF1	Config	Command (TAM)	Recall config	Presented in menu TamRcl to recall config from register or variable ; Shortcut : [RCL] - Config ; TAM : RCLCFG __ TamRcl menu ; Info : displays "Configuration data" in the stack	*Trailing input*		RCLCFG	
fF2	Stack	Command (TAM)	Recall stack	Presented in menu TamRcl to recall complete stack from 4 or 8 registers ; Shortcut : [RCL] - Stack ; TAM : RCLS __ TamRcl menu	*Trailing input*		RCLS	
fF3	...VEL$_{nn}$	Command (TAM)	Recall vector element	Presented in menu TamRcl to recall element n (TAM) of vector or matrix in X ; Shortcut : [RCL] - ...VEL$_{nn}$; TAM : RCLVEL ___ Tam menu	*Trailing input*		RCLVEL	
fF4								
fF5	...Min	Command (TAM)	Recall minimum	Presented in menu TamRcl to recall minimum of X and register or variable ; Shortcut : [RCL] - [↓] ; TAM : RCL↓ __ TamRcl menu	*Trailing input*		RCL↓	
fF6	...Max	Command (TAM)	Recall maximum	Presented in menu TamRcl to recall maximum of X and register or variable ; Shortcut : [RCL] - [↑] ; TAM : RCL↑ __ TamRcl menu	*Trailing input*		RCL↑	
gF1	...EL	Command (TAM)	Recall matrix element	Presented in menu TamRcl to recall current element of indexed matrix ; Shortcut : [RCL] - ...EL ; TI : M[I_r J_c]=<name> [<row> <col>]=	*Trailing input*		RCLEL	
gF2	...IJ	Command (TAM)	Recall current matrix index	Presented in menu TamRcl to recall current matrix index (row I and column J) ; Shortcut : [RCL] - ...IJ ; TI : M<name> :I_r= ; M<name> :J_c=	*Trailing input*		RCLIJ	
gF3	...VEL$_1$	Command (TAM)	Recall vector element 1	Presented in menu TamRcl to recall element 1 of vector or matrix in X	*Trailing input*		RCLVEL$_1$	
gF4	...VEL$_2$	Command (TAM)	Recall vector element 2	Presented in menu TamRcl to recall element 2 of vector or matrix in X	*Trailing input*		RCLVEL$_2$	
gF5	...VEL$_3$	Command (TAM)	Recall vector element 3	Presented in menu TamRcl to recall element 3 of vector or matrix in X	*Trailing input*		RCLVEL$_3$	
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	TamRcl	Link
F1	→	
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1	Config	
fF2	Stack	
fF3	...VEL$_{nn}$	
fF4		
fF5	...Min	
fF6	...Max	
gF1	...EL	
gF2	...IJ	
gF3	...VEL$_1$	
gF4	...VEL$_2$	
gF5	...VEL$_3$	
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamRclTVM	TAM mode (recall TVM)					
g-shift	→	VAR	...Min	...Max		REG
f-shift						cp/a 12
unshifted	n 0	I/a 0	PV 0	PMT 0	FV 0	pp/a 12
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamShuffle_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamRclTVM	MENU (TAM)	TAM mode (recall TVM)	Transient Alpha Mode is activated for trailing input (recall TVM) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamRclTVM menu is typically activated by [RCL] when menu TVM, AMORT or CASHFL is open	*Trailing input*			
F1	n 0	EasyAccess (TAM)	TVM number of payments	Easy access to variable NPPER to recall TVM number of payments (RCL 'NPPER') ; TI : 'NPPER' :	*Trailing input*			0
F2	I/a 0	EasyAccess (TAM)	TVM annual interest rate	Easy access to variable I%/a to recall TVM annual interest rate (RCL 'I%/a') ; TI : 'I%/a' :	*Trailing input*			0
F3	PV 0	EasyAccess (TAM)	TVM present value	Easy access to variable PV to recall TVM present value (RCL 'PV') ; TI : 'PV' :	*Trailing input*			0
F4	PMT 0	EasyAccess (TAM)	TVM payment	Easy access to variable PMT to recall TVM payment (RCL 'PMT') ; TI : 'PMT' :	*Trailing input*			0
F5	FV 0	EasyAccess (TAM)	TVM future value	Easy access to variable FV to recall TVM future value (RCL 'FV') ; TI : 'FV' :	*Trailing input*			0
F6	pp/a 12	EasyAccess (TAM)	TVM payment period	Easy access to variable PPER/a to recall TVM payment period (RCL 'PPER/a') ; TI : 'PPER/a' :	*Trailing input*			12
fF1								
fF2								
fF3								
fF4								
fF5								
fF6	cp/a 12	EasyAccess (TAM)	TVM compounding periods	Easy access to variable CPER/a to recall TVM compounding periods (RCL 'CPER/a') ; TI : 'CPER/a' :	*Trailing input*			12
gF1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
gF2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
gF3	...Min	Command (TAM)	Recall minimum	Presented in menu TamRcl to recall minimum of X and register or variable ; Shortcut : [RCL] - [↓] ; TAM : RCL↓ __ TamRcl menu	*Trailing input*		RCL↓	
gF4	...Max	Command (TAM)	Recall maximum	Presented in menu TamRcl to recall maximum of X and register or variable ; Shortcut : [RCL] - [↑] ; TAM : RCL↑ __ TamRcl menu	*Trailing input*		RCL↑	
gF5								
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	TamRclTVM	Link
F1	n 0	
F2	I/a 0	
F3	PV 0	
F4	PMT 0	
F5	FV 0	
F6	pp/a 12	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6	cp/a 12	
gF1	→	
gF2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
gF3	...Min	
gF4	...Max	
gF5		
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamShuffle	TAM mode (shuffle)					
g-shift						
f-shift						
unshifted			X	Y	Z	T
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamSto_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamShuffle	MENU (TAM)	TAM mode (shuffle)	Transient Alpha Mode is activated for trailing input (shuffle) ; Info : TamShuffle menu is typically activated by ⇄ on [STK.1] f F6	*Trailing input*			
F1								
F2								
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
f F1								
f F2								
f F3								
f F4								
f F5								
f F6								
g F1								
g F2								
g F3								
g F4								
g F5								
g F6								

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TamSto	TAM mode (store)					
g-shift	...EL	...IJ	...VEL$_1$	...VEL$_2$	...VEL$_3$	REG
f-shift	Config	Stack	...VEL$_{nn}$	...INDEX	...Min	...Max
unshifted	→	VAR	X	Y	Z	T
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamStoTVM_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamSto	MENU (TAM)	TAM mode (store)	Transient Alpha Mode is activated for trailing input (store) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamSto menu is typically activated by [STO]	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3	X	EasyAccess (TAM)	Register X	Easy access to Register X (100) : Stack level 1 ; TI : X:	*Trailing input*			
F4	Y	EasyAccess (TAM)	Register Y	Easy access to Register Y (101) : Stack level 2 ; TI : Y:	*Trailing input*			
F5	Z	EasyAccess (TAM)	Register Z	Easy access to Register Z (102) : Stack level 3 ; TI : Z:	*Trailing input*			
F6	T	EasyAccess (TAM)	Register T	Easy access to Register T (103) : Stack level 4 ; TI : T:	*Trailing input*			
fF1	Config	Command (TAM)	Store config	Presented in menu TamSto to store config in register or variable ; Shortcut : [STO] - Config ; TAM : STOCFG __ TamSto menu ; Info : displays "Configuration data" in the stack	*Trailing input*		STOCFG	
fF2	Stack	Command (TAM)	Store stack	Presented in menu TamSto to store entire stack in 4 or 8 registers ; Shortcut : [STO] - Stack ; TAM : STOS __ TamSto menu	*Trailing input*		STOS	
fF3	...VEL$_{nn}$	Command (TAM)	Store X into vector element	Presented in menu TamSto to store X into element n (TAM) of vector or matrix in Y ; Shortcut : [STO] - ...VEL$_{nn}$; TAM : STOVEL ___ Tam menu	*Trailing input*		STOVEL	
fF4	...INDEX	Command (TAM)	Index matrix	Presented in menu TamSto to Index matrix in a register or variable ; set row I to 1, column J to 1 ; clear flags WRPEDG and WRPEND ; index wraps automatically, setting these flags ; index is dropped upon exit of matrix editor ; TAM : INDEX __ Tam menu ; TI : M[I_r J_c]=<name> [<row> <col>]	*Trailing input*		INDEX	
fF5	...Min	Command (TAM)	Store minimum	Presented in menu TamSto to store minimum of X and register or variable ; Shortcut : [STO] - [↓] ; TAM : STO↓ __ TamSto menu	*Trailing input*		STO↓	
fF6	...Max	Command (TAM)	Store maximum	Presented in menu TamSto to store maximum of X and register or variable ; Shortcut : [STO] - [↑] ; TAM : STO↑ __ TamSto menu	*Trailing input*		STO↑	
gF1	...EL	Command (TAM)	Store X into matrix element	Presented in menu TamSto to store X into current element of indexed matrix ; Shortcut : [STO] - Config ; TI : M[I_r J_c]=<name> [<row> <col>]=	*Trailing input*		STOEL	
gF2	...IJ	Command (TAM)	Set current matrix index	Presented in menu TamSto to set current matrix index (row I and column J) ; Shortcut : [STO] - ...IJ ; TI : M<name> :I_r= ; M<name> :J_c=	*Trailing input*		STOIJ	
gF3	...VEL$_1$	Command (TAM)	Store X into vector element 1	Presented in menu TamSto to store X into element 1 of vector or matrix in Y	*Trailing input*		STOVEL$_1$	
gF4	...VEL$_2$	Command (TAM)	Store X into vector element 2	Presented in menu TamSto to store X into element 2 of vector or matrix in Y	*Trailing input*		STOVEL$_2$	
gF5	...VEL$_3$	Command (TAM)	Store X into vector element 3	Presented in menu TamSto to store X into element 3 of vector or matrix in Y	*Trailing input*		STOVEL$_3$	
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	TamSto	Link
F1	→	
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3	X	
F4	Y	
F5	Z	
F6	T	
fF1	Config	
fF2	Stack	
fF3	...VEL$_{nn}$	
fF4	...INDEX	
fF5	...Min	
fF6	...Max	
gF1	...EL	
gF2	...IJ	
gF3	...VEL$_1$	
gF4	...VEL$_2$	
gF5	...VEL$_3$	
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamStoTVM	TAM mode (store TVM)					
g-shift	→	VAR	...Min	...Max		REG
f-shift						cp/a 12
unshifted	n 0	I/a 0	PV 0	PMT 0	FV 0	pp/a 12
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TamVarOnly_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamStoTVM	MENU (TAM)	TAM mode (store TVM)	Transient Alpha Mode is activated for trailing input (store TVM) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamStoTVM menu is typically activated by [STO] when menu TVM, AMORT or CASHFL is open	*Trailing input*			
F1	n 0	EasyAccess (TAM)	TVM number of payments	Easy access to variable NPPER to store TVM number of payments (STO 'NPPER') ; TI : 'NPPER' :	*Trailing input*			0
F2	I/a 0	EasyAccess (TAM)	TVM annual interest rate	Easy access to variable I%/a to store TVM annual interest rate (STO 'I%/a') ; TI : 'I%/a' :	*Trailing input*			0
F3	PV 0	EasyAccess (TAM)	TVM present value	Easy access to variable PV to store TVM present value (STO 'PV') ; TI : 'PV' :	*Trailing input*			0
F4	PMT 0	EasyAccess (TAM)	TVM payment	Easy access to variable PMT to store TVM payment (STO 'PMT') ; TI : 'PMT' :	*Trailing input*			0
F5	FV 0	EasyAccess (TAM)	TVM future value	Easy access to variable FV to store TVM future value (STO 'FV') ; TI : 'FV' :	*Trailing input*			0
F6	pp/a 12	EasyAccess (TAM)	TVM payment period	Easy access to variable PPER/a to store TVM payment period (STO 'PPER/a') ; TI : 'PPER/a' :	*Trailing input*			12
fF1								
fF2								
fF3								
fF4								
fF5								
fF6	cp/a 12	EasyAccess (TAM)	TVM compounding periods	Easy access to variable CPER/a to store TVM compounding periods (STO 'CPER/a') ; TI : 'CPER/a' :	*Trailing input*			12
gF1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
gF2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
gF3	...Min	Command (TAM)	Recall minimum	Presented in menu TamRcl to recall minimum of X and register or variable ; Shortcut : [RCL] - [↓] ; TAM : RCL↓ __ TamRcl menu	*Trailing input*		RCL↓	
gF4	...Max	Command (TAM)	Recall maximum	Presented in menu TamRcl to recall maximum of X and register or variable ; Shortcut : [RCL] - [↑] ; TAM : RCL↑ __ TamRcl menu	*Trailing input*		RCL↑	
gF5								
gF6	REG	MENU (TAM)	TAM (register)	Presented in TAM menus to quickly select lettered registers ; Info : Shortcut {A} indicates character key A (in TAM), etcetera ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Trailing input*			

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p1	TamStoTVM	Link
F1	n $_0$	
F2	I/a $_0$	
F3	PV $_0$	
F4	PMT $_0$	
F5	FV $_0$	
F6	pp/a $_{12}$	
fF1		
fF2		
fF3		
fF4		
fF5		
fF6	cp/a $_{12}$	
gF1	→	
gF2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
gF3	...Min	
gF4	...Max	
gF5		
gF6	REG	https://47calc.com/doc/R47/Menus/R47v0_Menu_REG_page_1.pdf

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TamVarOnly	TAM mode (variable only)					
g-shift						
f-shift						
unshifted	→	VAR				
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TamVarOnly	MENU (TAM)	TAM mode (variable only)	Transient Alpha Mode is activated for trailing input (variable only) ; Info : α (f[XEQ]) or TAM [XEQ] activates TamAlpha ; Indirection (→) activates TamIndirect ; TamVarOnly menu is typically activated by MVAR on [P.FN2.1]F4	*Trailing input*			
F1	→	Command (TAM)	Indirection	Presented in TAM menus for commands accessing indirect input ; Info : Opens TamIndirect menu for the command that activated the current TAM menu	*Trailing input*			
F2	VAR	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	TamVarOnly	Link
F1	→	
F2	VAR	https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf
F3		
F4		
F5		
F6		
fF1		
fF2		
fF3		
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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Temp:	Temperature conversions					
g-shift						
f-shift	°F ←	→ °R	K ←	→ °R	K ←	→ eV/k_B
unshifted	°F ←	→ °C	K ←	→ °C	K ←	→ °F
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TEST_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Temp:	MENU	Temperature conversions	Convert between units of temperature ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Temperature conversions*		Temp:	
F1	°C→°F (°F ←)	Function (monadic, linked)	°C to °F	Convert degrees Celsius to degrees Fahrenheit ; TI : °F:	*Temperature conversions*	$CONV_{HP}$		
F2	°F→°C (→ °C)	Function (monadic, linked)	°F to °C	Convert degrees Fahrenheit to degrees Celsius ; TI : °C:	*Temperature conversions*	$CONV_{HP}$		
F3	°C→K (K ←)	Function (monadic, linked)	°C to K	Convert degrees Celsius to Kelvin ; TI : K:	*Temperature conversions*	$CONV_{HP}$		
F4	K→°C (→ °C)	Function (monadic, linked)	K to °C	Convert Kelvin to degrees Celsius ; TI : °C:	*Temperature conversions*	$CONV_{HP}$		
F5	°F→K (K ←)	Function (monadic, linked)	°F to K	Convert degrees Fahrenheit to Kelvin ; TI : K:	*Temperature conversions*	$CONV_{HP}$		
F6	K→°F (→ °F)	Function (monadic, linked)	K to °F	Convert Kelvin to degrees Fahrenheit ; TI : °F:	*Temperature conversions*	$CONV_{HP}$		
fF1	°R→°F (°F ←)	Function (monadic, linked)	°R to °F	Convert degrees Rankine to degrees Fahrenheit ; TI : °F:	*Temperature conversions*	$CONV_{HP}$		
fF2	°F→°R (→ °R)	Function (monadic, linked)	°F to °R	Convert degrees Fahrenheit to degrees Rankine ; TI : °R:	*Temperature conversions*	$CONV_{HP}$		
fF3	°R→K (K ←)	Function (monadic, linked)	°R to K	Convert degrees Rankine to Kelvin ; TI : K:	*Temperature conversions*	$CONV_{HP}$		
fF4	K→°R (→ °R)	Function (monadic, linked)	K to °R	Convert Kelvin to degrees Rankine ; TI : °R:	*Temperature conversions*	$CONV_{HP}$		
fF5	eV/k_B→K (K ←)	Function (monadic, linked)	eV/k_B to K	Convert electronvolt/Boltzmann constant to Kelvin ; TI : K:	*Temperature conversions*	$CONV_{HP}$		
fF6	K→eV/k_B (→ eV/k_B)	Function (monadic, linked)	K to eV/k_B	Convert Kelvin to electronvolt/Boltzmann constant ; TI : eV/k_B:	*Temperature conversions*	$CONV_{HP}$		
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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TEST	Testing					
g-shift	ENTRY?	KEY?	LBL?	TOP?	LEAP?	CONVG?
f-shift	x=-0 ?	x=+0 ?	x≈ ?	PRIME?	x≤-0 ?	x≥+0 ?
unshifted	x< ?	x≤ ?	x= ?	x≠ ?	x≥ ?	x> ?
Page 1	F1	F2	F3	F4	F5	F6

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TEST	MENU	Testing	Testing functions	*Programming*		TEST	
F1	x< ?	Command (logical)	X less than?	Test X is less than register or variable contents ; TAM : x< ? __ TamCmp menu	*Programming*		x< ?	
F2	x≤ ?	Command (logical)	X less than or equal to?	Test X is less than or equal to register or variable contents ; TAM : x≤ ? __ TamCmp menu	*Programming*		x≤ ?	
F3	x= ?	Command (logical)	X equals?	Test X equals register or variable contents ; TAM : x= ? __ TamCmp menu ; SBI : 0	*Programming*		x= ?	
F4	x≠ ?	Command (logical)	X not equal to?	Test X is not equal to register or variable contents ; TAM : x≠ ? __ TamCmp menu	*Programming*		x≠ ?	
F5	x≥ ?	Command (logical)	X greater than or equal to?	Test X is greater than or equal to register or variable contents ; TAM : x≥ ? __ TamCmp menu	*Programming*		x≥ ?	
F6	x> ?	Command (logical)	X greater than?	Test X is greater than register or variable contents ; TAM : x> ? __ TamCmp menu	*Programming*		x> ?	
fF1	x=-0 ?	Command (logical)	X equals -0?	Test X equals -0 (Real number)	*Programming*		x=-0 ?	
fF2	x=+0 ?	Command (logical)	X equals +0?	Test X equals +0 (Real number) ; SBI : 0	*Programming*		x=+0 ?	
fF3	x≈ ?	Command (logical)	X approximates?	Test X approximates register or variable contents (rounded values are equal) ; TAM : x≈ ? __ TamCmp menu	*Programming*		x≈ ?	
fF4	PRIME?	Command (logical)	Primality test	Test X is a prime number (must be integer) -- see https://en.wikipedia.org/wiki/Miller%E2%80%93Rabin_primality_test ; Info : Miller-Rabin probabilistic primality test is used (25 repetitions) ; PRIME? is correct up to 3 317 044 064 679 887 385 961 980 ; above that limit there are no false negatives, but there is a very low probability of false positives (albeit no known cases)	*Programming*		PRIME?	
fF5	x≤-0 ?	Command (logical)	X less than or equal to -0?	Test X is less than or equal to -0 (Real number)	*Programming*		x≤-0 ?	
fF6	x≥+0 ?	Command (logical)	X greater than or equal to +0?	Test X is greater than or equal to +0 (Real number)	*Programming*		x≥+0 ?	
gF1	ENTRY?	Command (logical)	(Data) entry?	Test internal entry flag for data entry	*Programming*		ENTRY?	
gF2	KEY?	Command (logical, PEM)	Key pressed?	Test key was pressed : if it is NOT pressed, the next program stap will be executed and if it IS pressed, the next program step will be skipped and the keycode is stored in the register specified ; keycode range is 11-85, where the first digit is row, second digit is column number ; TAM : KEY? __ Tam menu ; Info : KEY? should not to be used in short loops, keeps calculator running on full power ; [R/S] and [EXIT] interrupt a program and KEY? will not work for those keys ; Ref : https://47calc.com/doc/R47/Reference/R47v0_KeyType.pdf	*Programming*		KEY?	
gF3	LBL?	Command (logical)	Label exists?	Test label exists ; TAM : LBL? __ TamLabel menu	*Programming*		LBL?	
gF4	TOP?	Command (logical)	Top?	Test program pointer is in top routine (as opposed to in subroutine)	*Programming*		TOP?	
gF5	LEAP?	Command (logical)	Leap year?	Test X is a date in a leap year (test function D? must be true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		LEAP?	
gF6	CONVG?	Command (logical)	Convergence?	Test convergence of X and Y using binary coded parameter for comparison mode and special numbers ; tolerance is derived from setting SDIGS ; TAM : CONVG? _ TamNonReg menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_CONVG_param.pdf	*Programming*		CONVG?	

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TEST	Testing					
g-shift	STRI?		Rmatx?	Cmatx?		Config?
f-shift						
unshifted	SINT?	LINT?	R?	C?	D?	T?
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	TEST	MENU	Testing	Testing functions	*Programming*		TEST	
F1	SINT?	Command (logical)	Short integer?	Test type of X is Short integer (8.02-8.16) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		SINT?	
F2	LINT?	Command (logical)	Long integer?	Test type of X is Long integer (0) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		LINT?	
F3	ℝ?	Command (logical)	Real number?	Test type of X is Real number (1.0-1.5) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		ℝ?	
F4	ℂ?	Command (logical)	Complex number?	Test type of X is Complex number (2.0-2.5) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		ℂ?	
F5	𝔻?	Command (logical)	Date?	Test type of X is Date (4) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		𝔻?	
F6	𝕋?	Command (logical)	Time?	Test type of X is Time (3) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		𝕋?	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STRI?	Command (logical)	Text string?	Test type of X is Text string (5) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		STRI?	
gF2								
gF3	ℝmatx?	Command (logical)	Real matrix or vector?	Test type of X is Real matrix or vector (6) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		ℝmatx?	
gF4	ℂmatx?	Command (logical)	Complex matrix or vector?	Test type of X is Complex matrix or vector (7.n) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		ℂmatx?	
gF5								
gF6	Config?	Command (logical)	Config?	Test type of X is Config (9) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		Config?	

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TEST	Testing					
g-shift	NUMBR?	ANGLE?	NaN?	±∞?	SPEC?	
f-shift	EVEN?	ODD?	Re≠0?	Im≠0?	VECT2D?	VECT3D?
unshifted	FP?	INT?	Re=0?	Im=0?	MATR?	M.SQR?
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	TEST	MENU	Testing	Testing functions	*Programming*		TEST	
F1	FP?	Command (logical)	Fractional Part?	Test X has nonzero fractional part and is Real number (1.0-1.5) (test function R? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		FP?	
F2	INT?	Command (logical)	Integer?	Test X is short integer (8.02-8.16), long integer (0) or Real number (1.0-1.5) with zero fractional part (test function SINT?, LINT? or R? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		INT?	
F3	Re=0?	Command (logical)	Zero real part?	Test X has real part equal to zero	*Programming*		Re=0?	
F4	Im=0?	Command (logical)	Zero imaginary part?	Test X has imaginary part equal to zero	*Programming*		Im=0?	
F5	MATR?	Command (logical)	Real matrix or vector?	Test type of X is Real matrix or vector (6) or Complex matrix or vector (7.n) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		MATR?	
F6	M.SQR?	Command (logical)	Square matrix?	Test X is a square matrix (test function MATR? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		M.SQR?	
fF1	EVEN?	Command (logical)	Even?	Test X is even and integer (test function INT? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		EVEN?	
fF2	ODD?	Command (logical)	Odd?	Test X is odd and integer (test function INT? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		ODD?	
fF3	Re≠0?	Command (logical)	Non-zero real part?	Test X has real part not equal to zero	*Programming*		Re≠0?	
fF4	Im≠0?	Command (logical)	Non-zero imaginary part?	Test X has imaginary part not equal to zero	*Programming*		Im≠0?	
fF5	VECT2D?	Command (logical)	2D vector?	Test X is a 2D vector (test function MATR? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		VECT2D?	
fF6	VECT3D?	Command (logical)	3D vector?	Test X is a 3D vector (test function MATR? is true) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		VECT3D?	
gF1	NUMBR?	Command (logical)	Number?	Test type of X is Number (0 ; 1.0-1.5 ; 2.0-2.5) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		NUMBR?	
gF2	ANGLE?	Command (logical)	Angle?	Test type of X is Angle (1.1-1.5) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Programming*		ANGLE?	
gF3	NaN?	Command (logical)	not-a-number?	Test X is not-a-number	*Programming*		NaN?	
gF4	±∞?	Command (logical)	Infinities?	Test X contains positive or negative infinite value	*Programming*		±∞?	
gF5	SPEC?	Command (logical)	Special?	Test X is special (±∞ or NaN)	*Programming*		SPEC?	
gF6								

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TIMES	Time variables					
g-shift						
f-shift						
unshifted						
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TIMES	MENU	Time variables	Auto-generated catalog of variables of the specified datatype : Time (3)	*Catalog*		TIMES	
F1								
F2								
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Tool∫	Integrator tools (RPN)					
g-shift						
f-shift		-∞	+∞			
unshifted	ACC_0	$\int_y^x$	∫	↓Lim_0	↑Lim_0	
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Tool∫	MENU	Integrator tools (RPN)	Integrator tools and parameter settings ; Info : Tool∫ menu is typically activated by <var2>* on [∫fd (MVAR).1]F2	*Integrator*			
F1	ACC_0	Variable (real)	Accuracy of the integrator	Reserved Real variable for the accuracy of the integrator (ACC) ; set interactively from menu Tool∫ ; TI : 'ACC' :	*Integrator*		ACC	0
F2	$\int_y^x$	Command	Integrator (stack limits)	Solve the integral for the expression entered in the equation editor or the RPN program (with MVAR variables) selected in TAM ; in Program Entry Mode, RPN program must be specified by PGMINT ; integrator limits set from stack (Y, X) ; tolerance set by variable ACC ; TAM : $\int_y^x$ __ Tam menu (in PEM, to specify variable to integrate for) ; TI : Accuracy ≈ ; Info : ∫≈ displays the accumulated integral sum, the current accuracy achieved, the level counter from 7 down to 0 and an iteration counter ; shown if flag MONIT is SET	*Integrator*	INTING	$\int_y^x$	
F3	∫	Command	Integrator (variable limits)	Solve the integral for the expression entered in the equation editor or the RPN program (with MVAR variables) selected in TAM ; in Program Entry Mode, RPN program must be specified by PGMINT ; integrator limits set by variables (↓Lim, ↑Lim) ; tolerance set by variable ACC ; TAM : ∫ __ Tam menu (in PEM, to specify variable to integrate for) ; TI : Accuracy ≈ ; Info : ∫≈ displays the accumulated integral sum, the current accuracy achieved, the level counter from 7 down to 0 and an iteration counter ; shown if flag MONIT is SET	*Integrator*	INTING	∫fd	
F4	$↓Lim_0$	Variable (real)	Lower limit for integrator	Reserved Real variable for the lower limit for integrator (↓Lim) ; displays as ↓L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↓ Lower limit :	*Integrator*		↓Lim	0
F5	$↑Lim_0$	Variable (real)	Upper limit for integrator	Reserved Real variable for the upper limit for integrator (↑Lim) ; displays as ↑L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↑ Upper limit :	*Integrator*		↑Lim	0
F6								
fF1								
fF2	-∞	Constant	Minus infinity	Constant # 77 -∞ inf.minus = -∞	*Constants*			
fF3	+∞	Constant	Plus infinity	Constant # 78 +∞ inf.plus = +∞	*Constants*			
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Tool∫	Integrator tools [EQN]					
g-shift						
f-shift		-∞	+∞			
unshifted	ACC_0	$\int_y^x$	∫	↓Lim_0	↑Lim_0	Graphs
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Tool∫	MENU	Integrator tools [EQN]	Integrator tools and parameter settings	*Integrator*		Tool∫	
F1	ACC_0	Variable (real)	Accuracy of the integrator	Reserved Real variable for the accuracy of the integrator (ACC) ; set interactively from menu Tool∫ ; TI : 'ACC' :	*Integrator*		ACC	0
F2	$\int_y^x$	Command	Integrator (stack limits)	Solve the integral for the expression entered in the equation editor or the RPN program (with MVAR variables) selected in TAM ; in Program Entry Mode, RPN program must be specified by PGMINT ; integrator limits set from stack (Y, X) ; tolerance set by variable ACC ; TAM : $\int_y^x$ __ Tam menu (in PEM, to specify variable to integrate for) ; TI : Accuracy ≈ ; Info : ∫≈ displays the accumulated integral sum, the current accuracy achieved, the level counter from 7 down to 0 and an iteration counter ; shown if flag MONIT is SET	*Integrator*	INTING	$\int_y^x$	
F3	∫	Command	Integrator (variable limits)	Solve the integral for the expression entered in the equation editor or the RPN program (with MVAR variables) selected in TAM ; in Program Entry Mode, RPN program must be specified by PGMINT ; integrator limits set by variables (↓Lim, ↑Lim) ; tolerance set by variable ACC ; TAM : ∫ __ Tam menu (in PEM, to specify variable to integrate for) ; TI : Accuracy ≈ ; Info : ∫≈ displays the accumulated integral sum, the current accuracy achieved, the level counter from 7 down to 0 and an iteration counter ; shown if flag MONIT is SET	*Integrator*	INTING	∫fd	
F4	$↓Lim_0$	Variable (real)	Lower limit for integrator	Reserved Real variable for the lower limit for integrator (↓Lim) ; displays as ↓L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↓ Lower limit :	*Integrator*		↓Lim	0
F5	$↑Lim_0$	Variable (real)	Upper limit for integrator	Reserved Real variable for the upper limit for integrator (↑Lim) ; displays as ↑L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↑ Upper limit :	*Integrator*		↑Lim	0
F6	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
fF1								
fF2	-∞	Constant	Minus infinity	Constant # 77 -∞ inf.minus = -∞	*Constants*			
fF3	+∞	Constant	Plus infinity	Constant # 78 +∞ inf.plus = +∞	*Constants*			
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	Tool∫	Link
F1	ACC_0	
F2	$\int_y^x$	
F3	∫	
F4	↓Lim_0	
F5	↑Lim_0	
F6	Graphs	https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf
fF1		
fF2	-∞	
fF3	+∞	
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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ToolS	Solver tools					
g-shift						
f-shift		realSlv$_y^x$	realSlv			
unshifted	SDIGS$_{34}$	cpxSlv$_y^x$	cpxSlv	↓Est$_0$	↑Est$_0$	Graphs
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TRG_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Solver_Result_Codes.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0002_C47_JM_Graphs_and_complex_solver.pdf

Ref 3 https://47calc.com/doc/Application%20Notes/AN0010_C47_JM_Complex_solver_continued_r1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	ToolS	MENU	Solver tools	Solver tools and parameter settings ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Solver_Result_Codes.pdf	*Solver*		ToolS	
F1	SDIGS$_{34}$	Setting (pgm)	Set significant digits	Set the number of significant digits (1-34) for rounding after each operation ; sets tolerance of solvers, plotting and CONVG? ; value of 0 sets maximum precision (34) ; TAM : SDIGS __ TamNonReg menu ; Info : when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Mathematics*		SDIGS$_{34}$	34
F2	cpxSlv$^{x}_{y}$	Command (nonpgm)	Complex solver (stack limits)	Solve the algebraic expression (= 0) entered in the equation editor for complex roots ; interrupt by [EXIT] ; tolerance set by SDIGS ; solver estimates set from stack (Y, X) ; Info : Displays current evaluated number and iteration counter ; shown if flag MONIT is SET ; TI : Result Code = ; Accuracy ≈ ; <var>$_{prev}$ = ; <var> = (optionally: conjugates) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Solver_Result_Codes.pdf	*Solver*	SOLVING	cpxSlv$^{x}_{y}$	
F3	cpxSlv	Command (nonpgm)	Complex solver (variable limits)	Solve the algebraic expression (= 0) entered in the equation editor for complex roots ; interrupt by [EXIT] ; tolerance set by SDIGS ; solver estimates set from variables (↓Est, ↑Est) ; Info : Displays current evaluated number and iteration counter ; shown if flag MONIT is SET ; TI : Result Code = ; Accuracy ≈ ; <var>$_{prev}$ = ; <var> = (optionally: conjugates) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Solver_Result_Codes.pdf	*Solver*	SOLVING	cpxSlv	
F4	↓Est$_{0}$	Variable (real)	Lower estimate for solver	Reserved Real variable for the lower estimate for solver (↓Est) ; displays as ↓E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$^{x}_{y}$ or cpxSlv$^{x}_{y}$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↓EST	0
F5	↑Est$_{0}$	Variable (real)	Upper estimate for solver	Reserved Real variable for the upper estimate for solver (↑Est) ; displays as ↑E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$^{x}_{y}$ or cpxSlv$^{x}_{y}$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↑EST	0
F6	Graphs	MENU	Graphing...	Equation graphing functions	*Plotting*		Graphs	
fF1								
fF2	realSlv$^{x}_{y}$	Command (nonpgm)	Real solver (stack limits)	Solve the algebraic expression (= 0) entered in the equation editor for real roots ; interrupt by [EXIT] ; tolerance set by SDIGS ; monitoring set by MONIT ; solver estimates set from stack (Y, X) ; Info : Displays current evaluated number and iteration counter ; shown if flag MONIT is SET ; TI : Result Code = ; Accuracy ≈ ; <var>$_{prev}$ = ; <var> =	*Solver*	SOLVING	realSlv$^{x}_{y}$	
fF3	realSlv	Command (nonpgm)	Real solver (variable limits)	Solve the algebraic expression (= 0) entered in the equation editor for real roots ; interrupt by [EXIT] ; tolerance set by SDIGS ; monitoring set by MONIT ; solver estimates set from variables (↓Est, ↑Est) ; Info : Displays current evaluated number and iteration counter ; shown if flag MONIT is SET ; TI : Result Code = ; Accuracy ≈ ; <var>$_{prev}$ = ; <var> =	*Solver*	SOLVING	realSlv	
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	ToolS	Link
F1	SDIGS$_{34}$	
F2	cpxSlv$^{x}_{y}$	
F3	cpxSlv	
F4	↓Est$_{0}$	
F5	↑Est$_{0}$	
F6	Graphs	https://47calc.com/doc/R47/Menus/R47v0_Menu_Graphs_page_1.pdf
fF1		
fF2	realSlv$^{x}_{y}$	
fF3	realSlv	
fF4		
fF5		
fF6		
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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TRG...	More trig/hyperbolics					
g-shift	sinh	cosh	tanh	arsinh	arcosh	artanh
f-shift	sinc	sincπ	ATAN2	ASIN	ACOS	ATAN
unshifted	→DEG	→RAD	→GRAD	SIN	COS	TAN
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TVM_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TRG...	MENU	More trig/hyperbolics	Extended trigonometry (and access to hyperbolic) functions	*Trigonometry*		TRG...	
F1	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
F2	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : ʳ	*Angle tagging or conversion*		⇒RAD	
F3	⇒GRAD	Function (monadic)	Set GRAD tag or convert to GRAD	If untagged, set tag to GRAD (gradians) ; if tagged, convert X to GRAD ; does not change Angular Display Mode ; Tag : ᵍ	*Angle tagging or conversion*		⇒GRAD	
F4	SIN	Function (monadic)	Sine	Sine	*Trigonometry*		SIN	
F5	COS	Function (monadic)	Cosine	Cosine	*Trigonometry*		COS	
F6	TAN	Function (monadic)	Tangent	Tangent	*Trigonometry*		TAN	
fF1	sinc	Function (monadic)	Sinc	Calculate (Sine of X) / X ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sinc	
fF2	sincπ	Function (monadic)	Sinc pi	Calculate (Sine of π × X) / (π × X) ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sincπ	
fF3	ATAN2	Function (dyadic)	Expanded inverse tangent	Arc tangent of Y / X	*Trigonometry*		ATAN2	
fF4	ASIN	Function (monadic)	Arc sine	Inverse sine ; Info : Returns the principal value of the inverse sine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCSIN	
fF5	ACOS	Function (monadic)	Arc cosine	Inverse cosine ; Info : Returns the principal value of the inverse cosine of X ; if flag CPXRES is SET, the domain is extended beyond [-1, +1] and complex results may be returned ; SBI : ℂ ; ℝ	*Trigonometry*	CPXRES	ARCCOS	
fF6	ATAN	Function (monadic)	Arc tangent	Inverse tangent ; Info : Returns the principal value of the inverse tangent of X ; if flag SPCRES is SET, infinity input is allowed and the range is extended to [-90°, 90°] (inclusive)	*Trigonometry*	SPCRES	ARCTAN	
gF1	sinh	Function (monadic)	Hyperbolic sine	Hyperbolic sine	*Mathematics*		sinh	
gF2	cosh	Function (monadic)	Hyperbolic cosine	Hyperbolic cosine	*Mathematics*		cosh	
gF3	tanh	Function (monadic)	Hyperbolic tangent	Hyperbolic tangent	*Mathematics*		tanh	
gF4	arsinh	Function (monadic)	Inverse hyperbolic sine	Inverse hyperbolic sine	*Mathematics*		arsinh	
gF5	arcosh	Function (monadic)	Inverse hyperbolic cosine	Inverse hyperbolic cosine	*Mathematics*		arcosh	
gF6	artanh	Function (monadic)	Inverse hyperbolic tangent	Inverse hyperbolic tangent	*Mathematics*		artanh	

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TRG	Trigonometry					
g-shift	DEG ⊙	RAD ○	GRAD ○	D.MS ○	MULπ ○	ATAN2
f-shift	sinc	sincπ	.ms	$.ms^{-1}$	→R	→P
unshifted	⇒DEG	⇒RAD	⇒GRAD	⇒D.MS	⇒MULπ	DRG
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TRG_R47_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_DMS-HMS.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TRG	MENU	Trigonometry	Trigonometry functions ; Info : C47 menu TRG is replaced by TRG_R47 ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMS-HMS.pdf	*Trigonometry*		TRG	
F1	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
F2	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : ʳ	*Angle tagging or conversion*		⇒RAD	
F3	⇒GRAD	Function (monadic)	Set GRAD tag or convert to GRAD	If untagged, set tag to GRAD (gradians) ; if tagged, convert X to GRAD ; does not change Angular Display Mode ; Tag : ᵍ	*Angle tagging or conversion*		⇒GRAD	
F4	⇒D.MS	Function (monadic)	Set D.MS tag or convert to D.MS	If untagged, set tag to D.MS (sexagesimal degrees) ; if tagged, convert X to D.MS ; does not change Angular Display Mode ; Tag : °'"	*Angle tagging or conversion*		⇒D.MS	
F5	⇒MULπ	Function (monadic)	Set MULπ tag or convert to MULπ	If untagged, set tag to MULπ (multiple of pi radians) ; if tagged, convert X to MULπ ; does not change Angular Display Mode ; Tag : ᵖʳ	*Angle tagging or conversion*		⇒MULπ	
F6	DRG	Function (monadic, cyclic, nonpgm)	Degrees-radians-gradians	Add ADM tag to untagged value in X, convert tagged value to degrees-radians-gradians (cyclic) ; Info : Setting tag for complex X also sets POLAR mode for X according to ADM	*Angle conversions*		DRG	
fF1	sinc	Function (monadic)	Sinc	Calculate (Sine of X) / X ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sinc	
fF2	sincπ	Function (monadic)	Sinc pi	Calculate (Sine of π × X) / (π × X) ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sincπ	
fF3	.ms	Function (monadic, cyclic)	Minutes & seconds	Convert sexagesimal format input sequence or decimal stack value to hh:mm:ss hours or dd°mm'ss" degrees (cyclic) ; Info : NIM input treated as sexagesimal (hh/dd.mmss) format ; stack input treated as decimal value	*Time/angle conversions*		.ms	
fF4	$.ms^{-1}$	Function (monadic)	Sexagesimal	Convert hh:mm:ss hours or dd°mm'ss" degrees to sexagesimal format number (untag) ; TI : hh/dd.mmss: ; Info : puts sexagesimal NIM input of .ms back as decimal number on the stack	*Time/angle conversions*		$.ms^{-1}$	
fF5	→R	Function (monadic, dyadic)	To rectangular	Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $→RECT_{hp}$ or $→RECT_{cx}$ is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] $[\ v_1\ v_2\ ]$; 3D rectangular vector : [ijk] $[\ v_1\ v_2\ v_3\ ]$	*Complex and coordinates*	RP_{HP}	→RECT	
fF6	→P	Function (monadic, dyadic)	To polar	Transform rectangular to polar coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to polar notation (monadic) and set POLAR tag ; TI : r = ; θ = (POLAR) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $→POL_{hp}$ or $→POL_{cx}$ is stored ; for a 3D vector in X, function →POLAR (→P) cycles through →SPH, then →CYL ; vector display depends on flag 3Dxyz, for 2D polar vector : $[r\theta_{i;j}]$ $[\ v_1\ v_2\ ]^p$; 3D spherical vector : $[\rho\theta_{i;j}\phi_k]_M$ $[\ v_1\ v_2\ v_3\ ]^s$; 3D cylindrical vector : $[r\theta_{i;j}k]$ $[\ v_1\ v_2\ v_3\ ]^c$	*Complex and coordinates*	RP_{HP}	→POLAR	
gF1	DEG ⊙	Setting (pgm)	Set ADM to DEG	Set Angular Display Mode to degrees mode (ADM = 0) ; Info : SBI ° is shown if flag SBadm is SET ; SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : °	*Angle tagging or conversion*	SBadm	DEG ⊙	ON
gF2	RAD ○	Setting (pgm)	Set ADM to RAD	Set Angular Display Mode to radians mode (ADM = 2) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ʳ	*Angle tagging or conversion*	SBang	RAD ○	OFF
gF3	GRAD ○	Setting (pgm)	Set ADM to GRAD	Set Angular Display Mode to gradians mode (ADM = 4) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ᵍ	*Angle tagging or conversion*	SBang	GRAD ○	OFF
gF4	D.MS ○	Setting (pgm)	Set ADM to D.MS	Set Angular Display Mode to sexagesimal degrees mode (ADM = 1) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : "	*Angle tagging or conversion*	SBang	D.MS ○	OFF
gF5	MULπ ○	Setting (pgm)	Set ADM to MULπ	Set Angular Display Mode to multiple of pi radians mode (ADM = 3) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ᵖʳ	*Angle tagging or conversion*	SBang	MULπ ○	OFF
gF6	ATAN2	Function (dyadic)	Expanded inverse tangent	Arc tangent of Y / X	*Trigonometry*		ATAN2	

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TRG_R47	Trigonometry					
g-shift	→R	→P	.ms	.ms⁻¹	sinc	sincπ
f-shift	⇒DEG	⇒RAD	⇒GRAD	⇒D.MS	⇒MULπ	
unshifted	DEG ⊙	RAD ○	GRAD ○	D.MS ○	MULπ ○	ATAN2
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_TRG_MORE_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_DMS-HMS.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TRG_R47	MENU	Trigonometry	Trigonometry functions ; Info : TRG_R47 replaces C47 menu TRG ; Ref : https://47calc.com/doc/R47/Reference/R47v0_DMS-HMS.pdf	*Trigonometry*		TRG_R47	
F1	DEG ⊙	Setting (pgm)	Set ADM to DEG	Set Angular Display Mode to degrees mode (ADM = 0) ; Info : SBI ° is shown if flag SBadm is SET ; SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : °	*Angle tagging or conversion*	SBadm	DEG ⊙	ON
F2	RAD ○	Setting (pgm)	Set ADM to RAD	Set Angular Display Mode to radians mode (ADM = 2) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ʳ	*Angle tagging or conversion*	SBang	RAD ○	OFF
F3	GRAD ○	Setting (pgm)	Set ADM to GRAD	Set Angular Display Mode to gradians mode (ADM = 4) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ᵍ	*Angle tagging or conversion*	SBang	GRAD ○	OFF
F4	D.MS ○	Setting (pgm)	Set ADM to D.MS	Set Angular Display Mode to sexagesimal degrees mode (ADM = 1) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ʷ	*Angle tagging or conversion*	SBang	D.MS ○	OFF
F5	MULπ ○	Setting (pgm)	Set ADM to MULπ	Set Angular Display Mode to multiple of pi radians mode (ADM = 3) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : ᵖʳ	*Angle tagging or conversion*	SBang	MULπ ○	OFF
F6	ATAN2	Function (dyadic)	Expanded inverse tangent	Arc tangent of Y / X	*Trigonometry*		ATAN2	
fF1	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
fF2	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : ʳ	*Angle tagging or conversion*		⇒RAD	
fF3	⇒GRAD	Function (monadic)	Set GRAD tag or convert to GRAD	If untagged, set tag to GRAD (gradians) ; if tagged, convert X to GRAD ; does not change Angular Display Mode ; Tag : ᵍ	*Angle tagging or conversion*		⇒GRAD	
fF4	⇒D.MS	Function (monadic)	Set D.MS tag or convert to D.MS	If untagged, set tag to D.MS (sexagesimal degrees) ; if tagged, convert X to D.MS ; does not change Angular Display Mode ; Tag : ° ' "	*Angle tagging or conversion*		⇒D.MS	
fF5	⇒MULπ	Function (monadic)	Set MULπ tag or convert to MULπ	If untagged, set tag to MULπ (multiple of pi radians) ; if tagged, convert X to MULπ ; does not change Angular Display Mode ; Tag : ᵖʳ	*Angle tagging or conversion*		⇒MULπ	
fF6								
gF1	→R	Function (monadic, dyadic)	To rectangular	Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $→RECT_{hp}$ or $→RECT_{cx}$ is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] $[\ v_1\ v_2\ ]$; 3D rectangular vector : [ijk] $[\ v_1\ v_2\ v_3\ ]$	*Complex and coordinates*	RP_{HP}	→RECT	
gF2	→P	Function (monadic, dyadic)	To polar	Transform rectangular to polar coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to polar notation (monadic) and set POLAR tag ; TI : r = ; θ = (POLAR) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $→POL_{hp}$ or $→POL_{cx}$ is stored ; for a 3D vector in X, function →POLAR (→P) cycles through →SPH, then →CYL ; vector display depends on flag 3Dxyz, for 2D polar vector : $[r\theta_{i;j}]$ $[\ v_1\ v_2\ ]^p$; 3D spherical vector : $[\rho\theta_{i;j}\phi_k]_M$ $[\ v_1\ v_2\ v_3\ ]^s$; 3D cylindrical vector : $[r\theta_{i;j}k]$ $[\ v_1\ v_2\ v_3\ ]^c$	*Complex and coordinates*	RP_{HP}	→POLAR	
gF3	.ms	Function (monadic, cyclic)	Minutes & seconds	Convert sexagesimal format input sequence or decimal stack value to hh:mm:ss hours or dd°mm'ss" degrees (cyclic) ; Info : NIM input treated as sexagesimal (hh/dd.mmss) format ; stack input treated as decimal value	*Time/angle conversions*		.ms	
gF4	$.ms^{-1}$	Function (monadic)	Sexagesimal	Convert hh:mm:ss hours or dd°mm'ss" degrees to sexagesimal format number (untag) ; TI : hh/dd.mmss: ; Info : puts sexagesimal NIM input of .ms back as decimal number on the stack	*Time/angle conversions*		$.ms^{-1}$	
gF5	sinc	Function (monadic)	Sinc	Calculate (Sine of X) / X ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sinc	
gF6	sincπ	Function (monadic)	Sinc pi	Calculate (Sine of π × X) / (π × X) ; Info : Integers and untagged reals are assumed to be radians	*Mathematics*		sincπ	

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TVM	Time value of money					
g-shift	Begin ○	End ⊙	SDIGS$_{34}$			AMORT
f-shift	CLTVM	EFF→I/a	I→EFF/a			cp/a $_{12}$
unshifted	n $_0$	I/a $_0$	PV $_0$	PMT $_0$	FV $_0$	pp/a $_{12}$
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Uniform_page_1.pdf

Ref 1 https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	TVM	MENU	Time value of money	Time value of money functions ; Info : When menu TVM is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM ; TVM variable values are displayed as subscripts ; symbol ⌭ is used for very small values ; symbol ⌬ for very large values ; Ref : https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf	*Financial*		TVM	
F1	n_0	Variable (real)	TVM number of payments	Reserved Real variable for the TVM number of payments (n) ; TI : NPPER = n pay periods =	*Financial*		NPPER	0
F2	I/a_0	Variable (real)	TVM annual interest rate	Reserved Real variable for the TVM annual interest rate as percentage (I/a) ; use 10 for 10%, not 0.1 ; displays as I_a or I in menu TVM when value is large ; TI : I%/a = I%YR = APR =	*Financial*		I%/a	0
F3	PV_0	Variable (real)	TVM present value	Reserved Real variable for the TVM present value (PV) ; displays as P_v or P in menu TVM when value is large ; TI : PV = Present Value =	*Financial*		PV	0
F4	PMT_0	Variable (real)	TVM payment	Reserved Real variable for the TVM payment (PMT) ; displays as P_m or P in menu TVM when value is large ; TI : PMT = Payment =	*Financial*		PMT	0
F5	FV_0	Variable (real)	TVM future value	Reserved Real variable for the TVM future value (FV) ; displays as F in menu TVM when value is large ; TI : FV = Future Value =	*Financial*		FV	0
F6	pp/a_{12}	Variable (real)	TVM payment period	Reserved Real variable for the TVM payment period per annum (pp/a) ; displays as p_a or p in menu TVM when value ≠ 0 ; TI : PPER/a = Pay periods p.a. =	*Financial*		PPER/a	12
fF1	CLTVM	Command	Clear TVM variables	Clear TVM variables	*Cleanup*		CLTVM	
fF2	EFF→I/a	Function (monadic)	Nominal TVM annual rate	Calculate Nominal TVM annual rate from the Effective TVM annual rate in X and copy value to I/a (variable I%/a) -- see Formula_EFFTOI.png : https://47calc.com/doc/Images/Formula_EFFTOI.png ; TI : I%/a = I%YR = NAR =	*Financial*		EFF→I/a	
fF3	I→EFF/a	Function (monadic)	Effective TVM annual rate	Calculate Effective TVM annual rate from the TVM annual interest rate in I/a (variable I%/a) -- see Formula_ITOEFF.png : https://47calc.com/doc/Images/Formula_ITOEFF.png ; TI : EFF%/a = EFF%YR = EAR =	*Financial*		I→EFF/a	
fF4								
fF5								
fF6	cp/a_{12}	Variable (real)	TVM compounding periods	Reserved Real variable for the TVM compounding periods per annum (cp/a) ; displays as c_a or c in menu TVM when value ≠ 0 ; TI : CPER/a = Compounding periods p.a. =	*Financial*		CPER/a	12
gF1	Begin ○	Setting (pgm)	TVM begin payments	Switch on TVM begin payments ; Info : SBI END ; BEG is shown if flag SBtvm is SET and menu TVM, AMORT or CASHFL is open ; SBI : BEG	*Financial*	ENDPMT	BeginP ○	OFF
gF2	End ⊙	Setting (pgm)	TVM end payments	Switch on TVM end payments ; Info : SBI END ; BEG is shown if flag SBtvm is SET and menu TVM, AMORT or CASHFL is open ; SBI : END	*Financial*	ENDPMT	ENDP ⊙	ON
gF3	$SDIGS_{34}$	Setting (pgm)	Set significant digits	Set the number of significant digits (1-34) for rounding after each operation ; sets tolerance of solvers, plotting and CONVG? ; value of 0 sets maximum precision (34) ; TAM : SDIGS __ TamNonReg menu ; Info : when SDIGS is set to the maximum value of 34, plotting uses 15 instead, otherwise it uses the value set by SDIGS	*Mathematics*		$SDIGS_{34}$	34
gF4								
gF5								
gF6	AMORT	MENU	TVM amortisation	TVM amortisation ; Info : When menu AMORT is open, [RCL]/[STO] activates menu TamRclTVM/TamStoTVM ; Ref : https://47calc.com/doc/Application%20Notes/AN0012_C47_R47_JM_TVM.pdf	*Financial*		AMORT	

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p1	TVM	Link
F1	n 0	
F2	I/a 0	
F3	PV 0	
F4	PMT 0	
F5	FV 0	
F6	pp/a 12	
f F1	CLTVM	
f F2	EFF→I/a	
f F3	I→EFF/a	
f F4		
f F5		
f F6	cp/a 12	
g F1	Begin ○	
g F2	End ⊗	
g F3	SDIGS34	
g F4		
g F5		
g F6	AMORT	https://47calc.com/doc/R47/Menus/R47v0_Menu_AMORT_page_1.pdf

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Uniform:	Uniform distribution					
g-shift	STO$_M$ a	STO$_N$ b				
f-shift						
unshifted	Unfm$_p$		Unfm$_{\triangle}$	Unfm$_{\triangle}$		Unfm^{-1}
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_VAR_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Uniform:	MENU	Uniform distribution	Uniform probability distribution (continuous) ; TI : RegM = a = ; RegN = b =	*Probability (real)*		Uniform:	
F1	$Unfm_p$	Function (monadic)	Uniform pdf	Uniform probability density function	*Probability (real)*		$Unfm_p$	
F2								
F3	$Unfm_{◭}$	Function (monadic)	Uniform cdf (lower)	Uniform cumulative distribution (lower tail)	*Probability (real)*		$Unfm_{◭}$	
F4	$Unfm_{◮}$	Function (monadic)	Uniform cdf (upper)	Uniform cumulative distribution (upper tail)	*Probability (real)*		$Unfm_{◮}$	
F5								
F6	$Unfm^{-1}$	Function (monadic)	Uniform qf (inverse)	Uniform inverse cumulative distribution (quantile)	*Probability (real)*		$Unfm^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_M a	Command	Store a in M	Store parameter a : lower limit in register M ; Split screen : RegM = a =	*Probability (int)*			
gF2	STO_N b	Command	Store b in N	Store parameter b : upper limit in register N ; Split screen : RegN = b =	*Probability (int)*			
gF3								
gF4								
gF5								
gF6								

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VAR (ALL)	VAR					
g-shift	PV	STATS	↑EST	↑Lim	↑X	↑Y
f-shift	Mat_A	Mat_B	Mat_X	NPPER	PMT	PPER/a
unshifted	ACC	CPER/a	FV	GRAMOD	HISTO	I%/a
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	VAR (ALL)	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F1	ACC	Variable (real)	Accuracy of the integrator	Reserved Real variable for the accuracy of the integrator (ACC) ; set interactively from menu Tool∫ ; TI : 'ACC' :	*Integrator*		ACC	0
F2	CPER/a	Variable (real)	TVM compounding periods	Reserved Real variable for the TVM compounding periods per annum (cp/a) ; displays as c_a or c in menu TVM when value ≠ 0 ; TI : CPER/a = Compounding periods p.a. =	*Financial*		CPER/a	12
F3	FV	Variable (real)	TVM future value	Reserved Real variable for the TVM future value (FV) ; displays as F in menu TVM when value is large ; TI : FV = Future Value =	*Financial*		FV	0
F4	GRAMOD	Variable (longint)	Graphics display mode	Reserved LongInteger variable for the graphics display mode (GRAMOD) ; set interactively from menu P.FN1 (AGRAPH) ; Info : OR: 0 ; SET: 1 ; OFF: 2 ; XOR: 3	*Programming*		GRAMOD	0
F5	HISTO	Variable (matrix)	Histogram matrix	Reserved Matrix variable (cannot be deleted) for the histogram matrix (HISTO) ; created from STATS using menu HIST ; not created after RESET	*Plotting and statistics*		HISTO	
F6	I%/a	Variable (real)	TVM annual interest rate	Reserved Real variable for the TVM annual interest rate as percentage (I/a) ; use 10 for 10%, not 0.1 ; displays as I_a or I in menu TVM when value is large ; TI : I%/a = I%YR = APR =	*Financial*		I%/a	0
fF1	Mat_A	Variable (matrix)	Matrix A	Reserved Matrix variable for the Matrix A (Mat A) ; enter equation coefficient matrix using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_A	
fF2	Mat_B	Variable (matrix)	Matrix B	Reserved Matrix variable for the Matrix B (Mat B) ; enter equation result vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_B	
fF3	Mat_X	Variable (matrix)	Matrix X	Reserved Matrix variable for the Matrix X (Mat X) ; calculate equation solution vector using menu M_SIMQ ; created after RESET	*Matrix operations*		Mat_X	
fF4	NPPER	Variable (real)	TVM number of payments	Reserved Real variable for the TVM number of payments (n) ; TI : NPPER = n pay periods =	*Financial*		NPPER	0
fF5	PMT	Variable (real)	TVM payment	Reserved Real variable for the TVM payment (PMT) ; displays as P_m or P in menu TVM when value is large ; TI : PMT = Payment =	*Financial*		PMT	0
fF6	PPER/a	Variable (real)	TVM payment period	Reserved Real variable for the TVM payment period per annum (pp/a) ; displays as p_a or p in menu TVM when value ≠ 0 ; TI : PPER/a = Pay periods p.a. =	*Financial*		PPER/a	12
gF1	PV	Variable (real)	TVM present value	Reserved Real variable for the TVM present value (PV) ; displays as P_v or P in menu TVM when value is large ; TI : PV = Present Value =	*Financial*		PV	0
gF2	STATS	Variable (matrix)	Statistics matrix	Reserved Matrix variable (cannot be deleted) for the statistics matrix (STATS) ; created from data entered using Σ+ ; not created after RESET ; TI : Re-calculating sums ... ; may be shown when storing or loading the statistics matrix	*Plotting and statistics*		STATS	
gF3	↑EST	Variable (real)	Upper estimate for solver	Reserved Real variable for the upper estimate for solver (↑Est) ; displays as ↑E in menu ToolS for larger values ; set interactively from menu ToolS and set by $realSlv_y^x$ or $cpxSlv_y^x$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↑EST	0
gF4	↑Lim	Variable (real)	Upper limit for integrator	Reserved Real variable for the upper limit for integrator (↑Lim) ; displays as ↑L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int_y^x$; TI : ↑ Upper limit :	*Integrator*		↑Lim	0
gF5	↑X	Variable (real)	Upper limit for X-axis	Reserved Real variable for the upper limit for X-axis (↑X) ; set interactively from menu Graphs and set by $Draw_y^x$; TI : '↑X' :	*Plotting*		↑X	10
gF6	↑Y	Variable (real)	Upper limit for Y-axis	Reserved Real variable for the upper limit for Y-axis (↑Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↑Y' :	*Plotting*		↑Y	10

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VAR (ALL)	VAR					
g-shift						
f-shift						
unshifted	↓EST	↓Lim	↓X	↓Y		
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	VAR (ALL)	MENU (ASM)	VAR	Presented in TAM menus for commands accessing variables ; TAM : CAT.VARS.* menu ; Info : Type characters 1-2 to search ; Matrix variables STATS and HISTO are also included in this menu, if created	*Trailing input*		VAR	
F1	↓EST	Variable (real)	Lower estimate for solver	Reserved Real variable for the lower estimate for solver (↓Est) ; displays as ↓E in menu ToolS for larger values ; set interactively from menu ToolS and set by realSlv$^{x}_{y}$ or cpxSlv$^{x}_{y}$; Split screen : Displaying ↑Est Upper = ; ↓Est Lower =	*Solver*		↓EST	0
F2	↓Lim	Variable (real)	Lower limit for integrator	Reserved Real variable for the lower limit for integrator (↓Lim) ; displays as ↓L in menu Tool∫ for larger values ; set interactively from menu Tool∫ and set by $\int^{x}_{y}$; TI : ↓ Lower limit :	*Integrator*		↓Lim	0
F3	↓X	Variable (real)	Lower limit for X-axis	Reserved Real variable for the lower limit for X-axis (↓X) ; set interactively from menu Graphs and set by Draw$^{x}_{y}$; TI : '↓X' :	*Plotting*		↓X	-10
F4	↓Y	Variable (real)	Lower limit for Y-axis	Reserved Real variable for the lower limit for Y-axis (↓Y) ; set interactively from menu Graphs and set by Plot functions ; TI : '↓Y' :	*Plotting*		↓Y	0
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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VarMNU (MVAR)	Variable menu					
g-shift						
f-shift						
unshifted	<var$_1$>	<var$_2$>*	<var…>			
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	VarMNU (MVAR)	Command (PEM)	Variable menu	Create variable menu ; uses register K to store variable name when MVAR-defined button (<var...>) is pressed without NIM input ; TAM : VarMNU __ TamLblOnly menu ; Error 25 -- No MVAR found in selected program -- may be raised	*Programming*		VARMNU	
F1	<var$_1$>	Variable (user)	Variable 1	Variable 1 as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var$_1$>*) to indicate it is selected for a subsequent operation	*Equations*			
F2	<var$_2$>*	Variable (user)	Variable 2	Variable 2 as created by MVAR (in RPN program) (starred) ; Info : The variable name is starred (<var$_2$>*) after a value has been entered, to indicate it is selected for a subsequent operation	*Equations*			
F3	<var...>	Variable (user)	Variable ...	Next variable(s) if any, as created by MVAR (in RPN program) ; Info : After a value has been entered, the variable name is starred (<var...>*) to indicate it is selected for a subsequent operation	*Equations*			
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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VARS	Variables					
g-shift						
f-shift	CONFIGS	MATRS	DATES	TIMES	S.INTS	STRINGS
unshifted	NUMBRS	CPXS	REALS	ANGLES	L.INTS	ALL
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	VARS	MENU	Variables	Auto-generated variable catalogs	*Catalog*		VARS	
F1	NUMBRS	MENU	Number variables	Auto-generated catalog of variables of the specified datatype : Number (0 ; 1.0-1.5 ; 2.0-2.5)	*Catalog*		NUMBRS	
F2	CPXS	MENU	Complex variables	Auto-generated catalog of variables of the specified datatype : Complex number (2.0-2.5)	*Catalog*		CPXS	
F3	REALS	MENU	Real variables	Auto-generated catalog of variables of the specified datatype : Real number (1.0-1.5)	*Catalog*		REALS	
F4	ANGLES	MENU	Angle variables	Auto-generated catalog of variables of the specified datatype : Angle (1.1-1.5)	*Catalog*		ANGLES	
F5	L.INTS	MENU	Long integer variables	Auto-generated catalog of variables of the specified datatype : Long integer (0)	*Catalog*		L.INTS	
F6	ALL	MENU (ASM)	All variables	Auto-generated catalog of all variables ; Info : Matrix variables STATS and HISTO are also included in this menu, if created	*Catalog*		ALLVARS	
fF1	CONFIGS	MENU	Config variables	Auto-generated catalog of variables of the specified datatype : Config (9)	*Catalog*		CONFIGS	
fF2	MATRS	MENU	Real matrix or vector variables	Auto-generated catalog of variables of the specified datatype : Real matrix or vector (6) or Complex matrix or vector (7.n) ; Info : Matrix variables STATS and HISTO are also included in this menu, if created	*Catalog*		MATRS	
fF3	DATES	MENU	Date variables	Auto-generated catalog of variables of the specified datatype : Date (4)	*Catalog*		DATES	
fF4	TIMES	MENU	Time variables	Auto-generated catalog of variables of the specified datatype : Time (3)	*Catalog*		TIMES	
fF5	S.INTS	MENU	Short integer variables	Auto-generated catalog of variables of the specified datatype : Short integer (8.02-8.16)	*Catalog*		S.INTS	
fF6	STRINGS	MENU	Text string variables	Auto-generated catalog of variables of the specified datatype : Text string (5)	*Catalog*		STRINGS	
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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p1	VARS	Link
F1	NUMBRS	https://47calc.com/doc/R47/Menus/R47v0_Menu_NUMBRS_page_1.pdf
F2	CPXS	https://47calc.com/doc/R47/Menus/R47v0_Menu_CPXS_page_1.pdf
F3	REALS	https://47calc.com/doc/R47/Menus/R47v0_Menu_REALS_page_1.pdf
F4	ANGLES	https://47calc.com/doc/R47/Menus/R47v0_Menu_ANGLES_page_1.pdf
F5	L.INTS	https://47calc.com/doc/R47/Menus/R47v0_Menu_L-INTS_page_1.pdf
F6	ALL	https://47calc.com/doc/R47/Menus/R47v0_Menu_ALLVARS_page_1.pdf
fF1	CONFIGS	https://47calc.com/doc/R47/Menus/R47v0_Menu_CONFIGS_page_1.pdf
fF2	MATRS	https://47calc.com/doc/R47/Menus/R47v0_Menu_MATRS_page_1.pdf
fF3	DATES	https://47calc.com/doc/R47/Menus/R47v0_Menu_DATES_page_1.pdf
fF4	TIMES	https://47calc.com/doc/R47/Menus/R47v0_Menu_TIMES_page_1.pdf
fF5	S.INTS	https://47calc.com/doc/R47/Menus/R47v0_Menu_S-INTS_page_1.pdf
fF6	STRINGS	https://47calc.com/doc/R47/Menus/R47v0_Menu_STRINGS_page_1.pdf
gF1		
gF2		
gF3		
gF4		
gF5		
gF6		

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VECTOR	Vector menu					
g-shift	⇒DEG	⇒RAD	⇒MULπ	$\bar{v}_3$[100]	$\bar{v}_3$[010]	$\bar{v}_3$[001]
f-shift	$\|\|x\|\|_p$	UNITV	$\|\|\bar{x}-\bar{y}\|\|_2$	∡$\bar{x}$,$\bar{y}$	dot	cross
unshifted	→R	→SPH	→CYL	zyx⇔$\bar{v}_3$	$\bar{v}$←→$\bar{v}$	CLSTK
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	VECTOR	MENU	Vector menu	Vector functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		VECTOR	
F1	→R	Function (monadic, dyadic)	To rectangular	Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $\rightarrow RECT_{hp}$ or $\rightarrow RECT_{cx}$ is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] $[\ v_1\ v_2\ ]$; 3D rectangular vector : [ijk] $[\ v_1\ v_2\ v_3\ ]$	*Complex and coordinates*	RP_{HP}	→RECT	
F2	→SPH	Function (monadic)	Tag as Spherical	Tag a 3D vector as having spherical coordinates, according to Physics or Math conventions (for spherical polar vectors) as set by flag 3DPHYS (default CLEAR) and indicated by the TI subscript of the spherical polar vector : $_P$ for Physics, $_M$ for Math (determines ordering of vector elements, works on whole stack) ; Shortcut : →P cycles through →SPH, then →CYL ; Info : display depends on flag 3DPHYS, for spherical vector : $[\rho\theta_{ij}\phi_k]_M$ $[\ v_1\ v_2\ v_3\ ]^s$	*Vector operations*	3DPHYS	→SPH	
F3	→CYL	Function (monadic)	Tag as Cylindrical	Tag a 3D vector as having cylindrical coordinates ; Shortcut : →P cycles through →SPH, then →CYL ; Info : display depends on flag 3Dxyz, for cylindrical vector : $[r\theta_{ij}k]$ $[\ v_1\ v_2\ v_3\ ]^c$	*Vector operations*	3Dxyz	→CYL	
F4	zyx↔$\bar{v}_3$	Function (triadic, nonpgm)	Compose/decompose 1x3 vector	Compose/decompose 1x3 vector from/to Z, Y, X, according to Physics or Math conventions (for spherical polar vectors) as set by flag 3DPHYS (default CLEAR) ; tagged angles in the input will be recognized and the appropriate coordinate tag will be applied to the vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ijk] $[\ v_1\ v_2\ v_3\ ]$; rectangular elements : [i]= ; [j]= ; [k]= ; spherical vector : $[\rho\theta_{ij}\phi_k]_M$ $[\ v_1\ v_2\ v_3\ ]^s$; spherical elements : [ρ]= ; [θ_{ij}]= ; [ϕ_k]= ; cylindrical vector : $[r\theta_{ij}k]$ $[\ v_1\ v_2\ v_3\ ]^c$; cylindrical elements : [r]= ; [θ_{ij}]= ; [k]=	*Vector operations*	3Dxyz	zyx↔$\bar{v}_3$	
F5	$\bar{v}$←→$\bar{v}$	MENU	Vector conversions	Vector conversion functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		$\bar{v}$←→$\bar{v}$	
F6	CLSTK	Command	Clear stack	Clear stack registers : when stack size is 8, clears XYZTABCD ; when stack size is 4, clears XYZT ; if setting iLI is ON, the stack is filled with 0 (Long integers) ; when used while plotting, CLSTK returns to the normal screen as the stack is expected to show, implying an exit from graph and other modes ; Shortcut : longpress [←] ; SBI : 8 ; 4	*Cleanup*	SSIZE8	CLSTK	
fF1	$\lVert x\rVert_p$	Function (monadic)	Norm	Norm of vector or matrix in X with parameter p (trailing input) = 0, 1, 2, ..., 9, ∞ : 0 : Number of non-zeros of vector or matrix in X : $\lVert x\rVert_0 = \Sigma_i\Sigma_j\,\mathbb{I}\,(a_{ij}\neq 0)$, where $\mathbb{I}$ is the indicator function, 1 if true, 0 if false ; 1 : Maximum column sum of absolute element values of a matrix in X : $\lVert x\rVert_1 = \max_j\Sigma_i\lvert a_{ij}\rvert$; 2 : Euclidean magnitude of a vector in X or Frobenius norm of a matrix in X : $\lVert x\rVert_2 = \sqrt{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^2}$; 3 : $\lVert x\rVert_3 = \sqrt[3]{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^3}$; ... ; 9 : $\lVert x\rVert_9 = \sqrt[9]{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^9}$; ∞ : Maximum row sum of absolute element values of a matrix in X : $\lVert x\rVert_\infty = \max_i\Sigma_j\lvert a_{ij}\rvert$; TAM : $\lVert x\rVert_p$ _ TamNorm menu ; Info : parameter 0, 1, 2, ..., 9, ∞ (use [TamNorm.1] F2 to enter ∞)	*Matrix operations*		$\lVert x\rVert_p$	
fF2	UNITV	Command	Unit vector or matrix	Unit vector or matrix for ℝeal or ℂomplex matrix or vector ; the result will have Euclidean magnitude 1 ; Info : UNITV also applies to ℂomplex numbers	*Complex numbers*		UNITV	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
f F3	$\lVert\bar{x}-\bar{y}\rVert_2$	Function (dyadic)	Perpendicular distance	Perpendicular distance between Real matrices or vectors ; Complex matrices or vectors	*Vector operations*	3Dxyz	$\lVert\bar{x}-\bar{y}\rVert_2$	
f F4	$\measuredangle\bar{x},\bar{y}$	Function (dyadic)	Vector angle	Angle between the 2D or 3D vectors in X and Y	*Matrix operations*	3Dxyz	$\measuredangle\bar{x},\bar{y}$	
f F5	dot	Function (dyadic)	Dot product (·)	Dot product of vectors in X and Y	*Complex numbers*		DOT	
f F6	cross	Function (dyadic)	Cross product (×)	Cross product of vectors in X and Y	*Complex numbers*		CROSS	
g F1	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
g F2	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : r	*Angle tagging or conversion*		⇒RAD	
g F3	⇒MULπ	Function (monadic)	Set MULπ tag or convert to MULπ	If untagged, set tag to MULπ (multiple of pi radians) ; if tagged, convert X to MULπ ; does not change Angular Display Mode ; Tag : πr	*Angle tagging or conversion*		⇒MULπ	
g F4	$\bar{v}_3$[100]	Command	Unit vector [1 0 0]	Create a new 3D unit vector with elements [1 0 0] ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ijk] [v_1 v_2 v_3]	*Vector operations*	3Dxyz	$\bar{v}_3$[100]	
g F5	$\bar{v}_3$[010]	Command	Unit vector [0 1 0]	Create a new 3D unit vector with elements [0 1 0] ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ijk] [v_1 v_2 v_3]	*Vector operations*	3Dxyz	$\bar{v}_3$[010]	
g F6	$\bar{v}_3$[001]	Command	Unit vector [0 0 1]	Create a new 3D unit vector with elements [0 0 1] ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ijk] [v_1 v_2 v_3]	*Vector operations*	3Dxyz	$\bar{v}_3$[001]	

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p1	VECTOR	Link
F1	→R	
F2	→SPH	
F3	→CYL	
F4	zyx↔$\bar{v}_3$	
F5	$\bar{v}$←→$\bar{v}$	https://47calc.com/doc/R47/Menus/R47v0_Menu_VectorConv_page_1.pdf
F6	CLSTK	
fF1	$\lVert x \rVert_p$	
fF2	UNITV	
fF3	$\lVert \bar{x}-\bar{y} \rVert_2$	
fF4	∡$\bar{x},\bar{y}$	
fF5	dot	
fF6	cross	
gF1	⇒DEG	
gF2	⇒RAD	
gF3	⇒MULπ	
gF4	$\bar{v}_3$[100]	
gF5	$\bar{v}_3$[010]	
gF6	$\bar{v}_3$[001]	

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VECTOR	Vector menu					
g-shift	→DEG	→RAD	→MULπ		$\bar{v}_2$[10]	$\bar{v}_2$[01]
f-shift	$\lVert x \rVert_p$	UNITV	$\lVert \bar{x}-\bar{y} \rVert_2$	∡$\bar{x}$,$\bar{y}$	dot	cross
unshifted	→R	→P	ℂ↔$\bar{v}_2$	yx↔$\bar{v}_2$	$\bar{v}$←→$\bar{v}$	CLSTK
Page 2	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_VECTOR_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Volume_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	VECTOR	MENU	Vector menu	Vector functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		VECTOR	
F1	→R	Function (monadic, dyadic)	To rectangular	Transform polar to rectangular coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to rectangular notation (monadic) and set RECT tag ; TI : x : Re = ; y : Im = (RECT) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $\rightarrow RECT_{hp}$ or $\rightarrow RECT_{cx}$ is stored ; vector display depends on flag 3Dxyz, for 2D rectangular vector : [ij] [v_1 v_2] ; 3D rectangular vector : [ijk] [v_1 v_2 v_3]	*Complex and coordinates*	RP_{HP}	→RECT	
F2	→P	Function (monadic, dyadic)	To polar	Transform rectangular to polar coordinates (dyadic, stack conventions according to flag RP_{HP} SET or CLEAR) ; transform Complex number or 2D/3D vector to polar notation (monadic) and set POLAR tag ; TI : r = ; θ = (POLAR) ; Info : in Program Entry Mode, flag RP_{HP} determines whether $\rightarrow POL_{hp}$ or $\rightarrow POL_{cx}$ is stored ; for a 3D vector in X, function →POLAR (→P) cycles through →SPH, then →CYL ; vector display depends on flag 3Dxyz, for 2D polar vector : [$r\theta_{ij}$] [v_1 v_2]^p ; 3D spherical vector : [$\rho\theta_{ij}\phi_k$]$_M$ [v_1 v_2 v_3]^s ; 3D cylindrical vector : [$r\theta_{ij}k$] [v_1 v_2 v_3]^c	*Complex and coordinates*	RP_{HP}	→POLAR	
F3	$\mathbb{C}\leftrightarrow\bar{v}_2$	Function (monadic)	Complex to or from 1x2 vector	Convert Complex number to or from 1x2 vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2]	*Vector operations*	3Dxyz	$\mathbb{C}\leftrightarrow\bar{v}_2$	
F4	$yx\leftrightarrow\bar{v}_2$	Function (dyadic, nonpgm)	Compose/decompose 1x2 vector	Compose/decompose 1x2 vector from/to Y, X ; tagged angles in the input will be recognized and the appropriate coordinate tag will be applied to the vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2] ; rectangular elements : [i]= ; [j]= ; polar vector : [$r\theta_{ij}$] [v_1 v_2]^p ; polar elements : [r]= ; [θ_{ij}]=	*Vector operations*	3Dxyz	$yx\leftrightarrow\bar{v}_2$	
F5	$\bar{v}\leftrightarrow\bar{v}$	MENU	Vector conversions	Vector conversion functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		$\bar{v}\leftrightarrow\bar{v}$	
F6	CLSTK	Command	Clear stack	Clear stack registers : when stack size is 8, clears XYZTABCD ; when stack size is 4, clears XYZT ; if setting iLI is ON, the stack is filled with 0 (Long integers) ; when used while plotting, CLSTK returns to the normal screen as the stack is expected to show, implying an exit from graph and other modes ; Shortcut : longpress [←] ; SBI : 8 ; 4	*Cleanup*	SSIZE8	CLSTK	
fF1	$\lVert x\rVert_p$	Function (monadic)	Norm	Norm of vector or matrix in X with parameter p (trailing input) = 0, 1, 2, ..., 9, ∞ : 0 : Number of non-zeros of vector or matrix in X : $\lVert x\rVert_0 = \Sigma_i\Sigma_j \mathbb{I}(a_{ij}\neq 0)$, where $\mathbb{I}$ is the indicator function, 1 if true, 0 if false ; 1 : Maximum column sum of absolute element values of a matrix in X : $\lVert x\rVert_1 = \max_j\Sigma_i\lvert a_{ij}\rvert$; 2 : Euclidean magnitude of a vector in X or Frobenius norm of a matrix in X : $\lVert x\rVert_2 = \sqrt{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^2}$; 3 : $\lVert x\rVert_3 = \sqrt[3]{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^3}$; ... ; 9 : $\lVert x\rVert_9 = \sqrt[9]{\Sigma_i\Sigma_j\lvert a_{ij}\rvert^9}$; ∞ : Maximum row sum of absolute element values of a matrix in X : $\lVert x\rVert_\infty = \max_i\Sigma_j\lvert a_{ij}\rvert$; TAM : $\lVert x\rVert_p$ _ TamNorm menu ; Info : parameter 0, 1, 2, ..., 9, ∞ (use [TamNorm.1] F2 to enter ∞)	*Matrix operations*		$\lVert x\rVert_p$	
fF2	UNITV	Command	Unit vector or matrix	Unit vector or matrix for Real or Complex matrix or vector ; the result will have Euclidean magnitude 1 ; Info : UNITV also applies to Complex numbers	*Complex numbers*		UNITV	
fF3	$\lVert\bar{x}-\bar{y}\rVert_2$	Function (dyadic)	Perpendicular distance	Perpendicular distance between Real matrices or vectors ; Complex matrices or vectors	*Vector operations*	3Dxyz	$\lVert\bar{x}-\bar{y}\rVert_2$	
fF4	$\measuredangle\bar{x},\bar{y}$	Function (dyadic)	Vector angle	Angle between the 2D or 3D vectors in X and Y	*Matrix operations*	3Dxyz	$\measuredangle\bar{x},\bar{y}$	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
fF5	dot	Function (dyadic)	Dot product (·)	Dot product of vectors in X and Y	*Complex numbers*		DOT	
fF6	cross	Function (dyadic)	Cross product (×)	Cross product of vectors in X and Y	*Complex numbers*		CROSS	
gF1	⇒DEG	Function (monadic)	Set DEG tag or convert to DEG	If untagged, set tag to DEG (degrees) ; if tagged, convert X to DEG ; does not change Angular Display Mode ; Tag : °	*Angle tagging or conversion*		⇒DEG	
gF2	⇒RAD	Function (monadic)	Set RAD tag or convert to RAD	If untagged, set tag to RAD (radians) ; if tagged, convert X to RAD ; does not change Angular Display Mode ; Tag : ʳ	*Angle tagging or conversion*		⇒RAD	
gF3	⇒MULπ	Function (monadic)	Set MULπ tag or convert to MULπ	If untagged, set tag to MULπ (multiple of pi radians) ; if tagged, convert X to MULπ ; does not change Angular Display Mode ; Tag : $^{\pi r}$	*Angle tagging or conversion*		⇒MULπ	
gF4								
gF5	$\bar{v}_2$[10]	Command	Unit vector [1 0]	Create a new 2D unit vector with elements [1 0] ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2]	*Vector operations*	3Dxyz	$\bar{v}_2$[10]	
gF6	$\bar{v}_2$[01]	Command	Unit vector [0 1]	Create a new 2D unit vector with elements [0 1] ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2]	*Vector operations*	3Dxyz	$\bar{v}_2$[01]	

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p2	VECTOR	Link
F1	→R	
F2	→P	
F3	ℂ↔$\bar{v}_2$	
F4	yx↔$\bar{v}_2$	
F5	$\bar{v}$←→$\bar{v}$	https://47calc.com/doc/R47/Menus/R47v0_Menu_VectorConv_page_1.pdf
F6	CLSTK	
fF1	$\lVert x \rVert_p$	
fF2	UNITV	
fF3	$\lVert \bar{x}-\bar{y} \rVert_2$	
fF4	∡$\bar{x},\bar{y}$	
fF5	dot	
fF6	cross	
gF1	⇒DEG	
gF2	⇒RAD	
gF3	⇒MULπ	
gF4		
gF5	$\bar{v}_2$[10]	
gF6	$\bar{v}_2$[01]	

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$\bar{v}\leftrightarrow\bar{v}$	Vector conversions					
g-shift	$\mathbb{C}\rightarrow\bar{v}_2$	$\bar{v}_2\rightarrow\mathbb{C}$	$V\rightarrow R_{nn}$	$R_{nn}\rightarrow V$	3DPHYS □	3Dxyz □
f-shift	$yx\leftrightarrow\bar{v}_2$		$zyx\leftrightarrow\bar{v}_3$		$tzyx\leftrightarrow\bar{v}_4$	
unshifted	$yx\rightarrow\bar{v}_2$	$\bar{v}_2\rightarrow yx$	$zyx\rightarrow\bar{v}_3$	$\bar{v}_3\rightarrow zyx$	$tzyx\rightarrow\bar{v}_4$	$\bar{v}_4\rightarrow tzyx$
Page 1	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Arrow_page_1.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	$\bar{v}\leftarrow\rightarrow\bar{v}$	MENU	Vector conversions	Vector conversion functions ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Vector_display.pdf ; Info : Vectors are stored internally as rectangular and calculation results are presented in rectangular format ; to edit a vector, first put it in rectangular format ; vector TI's are shown for values in X only and a small font may be used ; vector TI's are minimised if the stack changes or [EXIT] is pressed (only ijk or rθk or ρθϕ is shown, without subscripts or brackets)	*Vector operations*		$\bar{v}\leftarrow\rightarrow\bar{v}$	
F1	yx→$\bar{v}_2$	Function (dyadic)	Compose 1x2 vector	Compose 1x2 vector from Y, X ; tagged angles in the input will be recognized and the appropriate coordinate tag will be applied to the vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2] ; polar vector : [rθ_{ij}] [v_1 v_2]^p	*Vector operations*	3Dxyz	yx→$\bar{v}_2$	
F2	$\bar{v}_2$→yx	Function (monadic)	Decompose 1x2 vector	Decompose 1x2 vector to Y, X ; Info : Display depends on flag 3Dxyz, for rectangular elements : [i]= ; [j]= ; polar elements : [r]= ; [θ_{ij}]=	*Vector operations*	3Dxyz	$\bar{v}_2$→yx	
F3	zyx→$\bar{v}_3$	Function (triadic)	Compose 1x3 vector	Compose 1x3 vector from Z, Y, X, according to Physics or Math conventions (for spherical polar vectors) as set by flag 3DPHYS (default CLEAR) ; tagged angles in the input will be recognized and the appropriate coordinate tag will be applied to the vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ijk] [v_1 v_2 v_3] ; spherical vector : [$\rho\theta_{ij}\phi_k$]$_M$ [v_1 v_2 v_3]^s ; cylindrical vector : [rθ_{ij}k] [v_1 v_2 v_3]^c ; in Program Entry Mode, flag 3DPHYS determines whether zyx→$\bar{v}_{3M}$ or zyx→$\bar{v}_{3P}$ is stored ; notation convention is indicated by the TI subscript of the spherical polar vector : $_P$ for Physics, $_M$ for Math (determines ordering of vector elements, works on whole stack)	*Vector operations*	3Dxyz	zyx→$\bar{v}_3$	
F4	$\bar{v}_3$→zyx	Function (monadic)	Decompose 1x3 vector	Decompose 1x3 vector to Z, Y, X, according to Physics or Math conventions (for spherical polar vectors) as set by flag 3DPHYS (default CLEAR) ; Info : Display depends on flag 3Dxyz, for rectangular elements : [i]= ; [j]= ; [k]= ; spherical elements : [ρ]= ; [θ_{ij}]= ; [ϕ_k]= ; cylindrical elements : [r]= ; [θ_{ij}]= ; [k]= ; in Program Entry Mode, flag 3DPHYS determines whether $\bar{v}_3$→zyx$_M$ or $\bar{v}_3$→zyx$_P$ is stored	*Vector operations*	3Dxyz	$\bar{v}_3$→zyx	
F5	tzyx→$\bar{v}_4$	Function (tetradic	Compose 1x4 vector	Compose 1x4 vector from T, Z, Y, X	*Vector operations*		tzyx→$\bar{v}_4$	
F6	$\bar{v}_4$→tzyx	Function (monadic)	Decompose 1x4 vector	Decompose 1x4 vector to T, Z, Y, X	*Vector operations*		$\bar{v}_4$→tzyx	
fF1	yx↔$\bar{v}_2$	Function (dyadic, nonpgm)	Compose/decompose 1x2 vector	Compose/decompose 1x2 vector from/to Y, X ; tagged angles in the input will be recognized and the appropriate coordinate tag will be applied to the vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2] ; rectangular elements : [i]= ; [j]= ; polar vector : [rθ_{ij}] [v_1 v_2]^p ; polar elements : [r]= ; [θ_{ij}]=	*Vector operations*	3Dxyz	yx↔$\bar{v}_2$	
fF2								
fF3	zyx↔$\bar{v}_3$	Function (triadic, nonpgm)	Compose/decompose 1x3 vector	Compose/decompose 1x3 vector from/to Z, Y, X, according to Physics or Math conventions (for spherical polar vectors) as set by flag 3DPHYS (default CLEAR) ; tagged angles in the input will be recognized and the appropriate coordinate tag will be applied to the vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ijk] [v_1 v_2 v_3] ; rectangular elements : [i]= ; [j]= ; [k]= ; spherical vector : [$\rho\theta_{ij}\phi_k$]$_M$ [v_1 v_2 v_3]^s ; spherical elements : [ρ]= ; [θ_{ij}]= ; [ϕ_k]= ; cylindrical vector : [rθ_{ij}k] [v_1 v_2 v_3]^c ; cylindrical elements : [r]= ; [θ_{ij}]= ; [k]=	*Vector operations*	3Dxyz	zyx↔$\bar{v}_3$	
fF4								
fF5	tzyx↔$\bar{v}_4$	Function (tetradic, nonpgm)	Compose/decompose 1x4 vector	Compose/decompose 1x4 vector from/to T, Z, Y, X	*Vector operations*		tzyx↔$\bar{v}_4$	
fF6								
gF1	ℂ→$\bar{v}_2$	Function (monadic)	Complex to 1x2 vector	Convert Complex number to 1x2 vector ; Info : Display depends on flag 3Dxyz, for rectangular vector : [ij] [v_1 v_2]	*Vector operations*	3Dxyz	ℂ→$\bar{v}_2$	
gF2	$\bar{v}_2$→ℂ	Function (monadic)	1x2 vector to Complex number	Convert 1x2 vector to Complex number (2.0-2.5)	*Vector operations*	3Dxyz	$\bar{v}_2$→ℂ	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF3	V→R_{nn}	Command	Copy elements to registers	Copy elements of matrix or vector in X to ascending range of registers, starting with register nn (TAM), where numbers of registers depends on size of matrix or vector ; TAM : V→R_{nn} __ TamIndirect menu ; be careful when using the range of stack registers (100-107) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Matrix operations*	3Dxyz	V→R_{nn}	
gF4	R_{nn}→V	Command	Fill matrix from registers	Fill matrix or vector in X from ascending range of registers starting with register nn (TAM), where numbers of registers depends on size of matrix or vector ; TAM : R_{nn}→V __ TamIndirect menu ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Registers.pdf	*Matrix operations*	3Dxyz	R_{nn}→V	
gF5	3DPHYS ◻	Setting (pgm)	Physics or Math	Switch on Physics conventions in spherical polar vectors ; Info : The notation convention is indicated by the TI subscript of the spherical polar vector : $_P$ for Physics, $_M$ for Math (determines ordering of vector elements, works on whole stack)	*Vector operations*	3DPHYS		OFF
gF6	3Dxyz ◻	Setting (pgm)	xyz or ijk vector display	Switch on xyz (rθz) display of vectors ; Info : Indicated by TI subscript of vector elements : $_{xyz}$ or $_{ijk}$	*Vector operations*	3Dxyz		OFF

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Volume:	Volume conversions					
g-shift	gal_{UK} ←	→ $floz_{UK}$	m^3 ←	→ barrel	ℓ ←	→ qt_{UK}
f-shift	mℓ ←	→ $floz_{UK}$	ft^3 ←	→ gal_{UK}	ℓ ←	→ gal_{UK}
unshifted	mℓ ←	→ in^3	in^3 ←	→ $floz_{UK}$	ℓ ←	→ ft^3
Page 1	F1	F2	F3	F4	F5	F6

Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_VECTOR_page_2.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Volume_page_2.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Volume:	MENU	Volume conversions	Convert between units of volume ; this menu has two pages, one for the UK (imperial) units, the other for the US (customary) units : this is determined by flag $CONV_{US}$, which is SET for US units on page 1 ; CLEAR for UK units on page 1 (default CLEAR) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Volume conversions*		Volume:	
F1	in^3→mℓ (mℓ ←)	Function (monadic, linked)	in^3 to mℓ	Convert cubic inch to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
F2	mℓ→in^3 (→ in^3)	Function (monadic, linked)	mℓ to in^3	Convert millilitre to cubic inch ; TI : in^3:	*Volume conversions*	$CONV_{HP}$		
F3	$floz_{UK}$→in^3 (in^3 ←)	Function (monadic, linked)	$floz_{UK}$ to in^3	Convert UK fluid ounce to cubic inch ; TI : in^3:	*Volume conversions*	$CONV_{HP}$		
F4	in^3→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	in^3 to $floz_{UK}$	Convert cubic inch to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
F5	ft^3→ℓ (ℓ ←)	Function (monadic, linked)	ft^3 to ℓ	Convert cubic foot to litre ; TI : ℓ:	*Volume conversions*	$CONV_{HP}$		
F6	ℓ→ft^3 (→ ft^3)	Function (monadic, linked)	ℓ to ft^3	Convert litre to cubic foot ; TI : ft^3:	*Volume conversions*	$CONV_{HP}$		
fF1	$floz_{UK}$→mℓ (mℓ ←)	Function (monadic, linked)	$floz_{UK}$ to mℓ	Convert UK fluid ounce to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
fF2	mℓ→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	mℓ to $floz_{UK}$	Convert millilitre to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
fF3	gal_{UK}→ft^3 (ft^3 ←)	Function (monadic, linked)	gal_{UK} to ft^3	Convert UK gallon to cubic foot ; TI : ft^3:	*Volume conversions*	$CONV_{HP}$		
fF4	ft^3→gal_{UK} (→ gal_{UK})	Function (monadic, linked)	ft^3 to gal_{UK}	Convert cubic foot to UK gallon ; TI : gal_{UK}:	*Volume conversions*	$CONV_{HP}$		
fF5	gal_{UK}→ℓ (ℓ ←)	Function (monadic, linked)	gal_{UK} to ℓ	Convert UK gallon to litre ; TI : ℓ:	*Volume conversions*	$CONV_{HP}$		
fF6	ℓ→gal_{UK} (→ gal_{UK})	Function (monadic, linked)	ℓ to gal_{UK}	Convert litre to UK gallon ; TI : gal_{UK}:	*Volume conversions*	$CONV_{HP}$		
gF1	$floz_{UK}$→gal_{UK} (gal_{UK} ←)	Function (monadic, linked)	$floz_{UK}$ to gal_{UK}	Convert UK fluid ounce to UK gallon ; TI : gal_{UK}:	*Volume conversions*	$CONV_{HP}$		
gF2	gal_{UK}→$floz_{UK}$ (→ $floz_{UK}$)	Function (monadic, linked)	gal_{UK} to $floz_{UK}$	Convert UK gallon to UK fluid ounce ; TI : $floz_{UK}$:	*Volume conversions*	$CONV_{HP}$		
gF3	barrel→m^3 (m^3 ←)	Function (monadic, linked)	barrel to m^3	Convert barrel to cubic metre ; TI : m^3:	*Volume conversions*	$CONV_{HP}$		
gF4	m^3→barrel (→ barrel)	Function (monadic, linked)	m^3 to barrel	Convert cubic metre to barrel ; TI : barrel:	*Volume conversions*	$CONV_{HP}$		
gF5	qt_{UK}→ℓ (ℓ ←)	Function (monadic, linked)	qt_{UK} to ℓ	Convert UK quart to litre ; TI : ℓ:	*Volume conversions*	$CONV_{HP}$		
gF6	ℓ→qt_{UK} (→ qt_{UK})	Function (monadic, linked)	ℓ to qt_{UK}	Convert litre to UK quart ; TI : qt_{UK}:	*Volume conversions*	$CONV_{HP}$		

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Volume:	Volume conversions					
g-shift	gal_{US} ←	→ $floz_{US}$	m^3 ←	→ barrel	ℓ ←	→ qt_{US}
f-shift	mℓ ←	→ $floz_{US}$	ft^3 ←	→ gal_{US}	ℓ ←	→ gal_{US}
unshifted	mℓ ←	→ in^3	in^3 ←	→ $floz_{US}$	ℓ ←	→ ft^3
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Weibl_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	Volume:	MENU	Volume conversions	Convert between units of volume ; this menu has two pages, one for the UK (imperial) units, the other for the US (customary) units : this is determined by flag $CONV_{US}$, which is SET for US units on page 1 ; CLEAR for UK units on page 1 (default CLEAR) ; Info : Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Volume conversions*		Volume:	
F1	in^3→mℓ (mℓ ←)	Function (monadic, linked)	in^3 to mℓ	Convert cubic inch to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
F2	mℓ→in^3 (→ in^3)	Function (monadic, linked)	mℓ to in^3	Convert millilitre to cubic inch ; TI : in^3:	*Volume conversions*	$CONV_{HP}$		
F3	$floz_{US}$→in^3 (in^3 ←)	Function (monadic, linked)	$floz_{US}$ to in^3	Convert US fluid ounce to cubic inch ; TI : in^3:	*Volume conversions*	$CONV_{HP}$		
F4	in^3→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	in^3 to $floz_{US}$	Convert cubic inch to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
F5	ft^3→ℓ (ℓ ←)	Function (monadic, linked)	ft^3 to ℓ	Convert cubic foot to litre ; TI : ℓ:	*Volume conversions*	$CONV_{HP}$		
F6	ℓ→ft^3 (→ ft^3)	Function (monadic, linked)	ℓ to ft^3	Convert litre to cubic foot ; TI : ft^3:	*Volume conversions*	$CONV_{HP}$		
fF1	$floz_{US}$→mℓ (mℓ ←)	Function (monadic, linked)	$floz_{US}$ to mℓ	Convert US fluid ounce to millilitre ; TI : mℓ:	*Volume conversions*	$CONV_{HP}$		
fF2	mℓ→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	mℓ to $floz_{US}$	Convert millilitre to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
fF3	gal_{US}→ft^3 (ft^3 ←)	Function (monadic, linked)	gal_{US} to ft^3	Convert US gallon to cubic foot ; TI : ft^3:	*Volume conversions*	$CONV_{HP}$		
fF4	ft^3→gal_{US} (→ gal_{US})	Function (monadic, linked)	ft^3 to gal_{US}	Convert cubic foot to US gallon ; TI : gal_{US}:	*Volume conversions*	$CONV_{HP}$		
fF5	gal_{US}→ℓ (ℓ ←)	Function (monadic, linked)	gal_{US} to ℓ	Convert US gallon to litre ; TI : ℓ:	*Volume conversions*	$CONV_{HP}$		
fF6	ℓ→gal_{US} (→ gal_{US})	Function (monadic, linked)	ℓ to gal_{US}	Convert litre to US gallon ; TI : gal_{US}:	*Volume conversions*	$CONV_{HP}$		
gF1	$floz_{US}$→gal_{US} (gal_{US} ←)	Function (monadic, linked)	$floz_{US}$ to gal_{US}	Convert US fluid ounce to US gallon ; TI : gal_{US}:	*Volume conversions*	$CONV_{HP}$		
gF2	gal_{US}→$floz_{US}$ (→ $floz_{US}$)	Function (monadic, linked)	gal_{US} to $floz_{US}$	Convert US gallon to US fluid ounce ; TI : $floz_{US}$:	*Volume conversions*	$CONV_{HP}$		
gF3	barrel→m^3 (m^3 ←)	Function (monadic, linked)	barrel to m^3	Convert barrel to cubic metre ; TI : m^3:	*Volume conversions*	$CONV_{HP}$		
gF4	m^3→barrel (→ barrel)	Function (monadic, linked)	m^3 to barrel	Convert cubic metre to barrel ; TI : barrel:	*Volume conversions*	$CONV_{HP}$		
gF5	qt_{US}→ℓ (ℓ ←)	Function (monadic, linked)	qt_{US} to ℓ	Convert US quart to litre ; TI : ℓ:	*Volume conversions*	$CONV_{HP}$		
gF6	ℓ→qt_{US} (→ qt_{US})	Function (monadic, linked)	ℓ to qt_{US}	Convert litre to US quart ; TI : qt_{US}:	*Volume conversions*	$CONV_{HP}$		

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Weibl:	Weibull distribution					
g-shift	STO$_Q$ k	STO$_S$ λ				
f-shift						
unshifted	Weibl$_p$		Weibl$_{\triangle}$	Weibl$_{\triangle}$		Weibl^{-1}
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Weibl:	MENU	Weibull distribution	Weibull probability distribution (continuous) ; TI : RegQ = k = ; RegS = λ =	*Probability (real)*		Weibl:	
F1	$Weibl_p$	Function (monadic)	Weibull pdf	Weibull probability density function	*Probability (real)*		$Weibl_p$	
F2								
F3	$Weibl_{◺}$	Function (monadic)	Weibull cdf (lower)	Weibull cumulative distribution (lower tail)	*Probability (real)*		$Weibl_{◺}$	
F4	$Weibl_{◹}$	Function (monadic)	Weibull cdf (upper)	Weibull cumulative distribution (upper tail)	*Probability (real)*		$Weibl_{◹}$	
F5								
F6	$Weibl^{-1}$	Function (monadic)	Weibull qf (inverse)	Weibull inverse cumulative distribution (quantile)	*Probability (real)*		$Weibl^{-1}$	
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	STO_Q k	Command	Store k in Q	Store parameter k : shape in register Q ; Split screen : RegQ = k =	*Probability (real)*			
gF2	STO_S λ	Command	Store λ in S	Store parameter λ : scale in register S ; Split screen : RegS = λ =	*Probability (real)*			
gF3								
gF4								
gF5								
gF6								

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X.FN	Extended functions					
g-shift	g_d	g_d^{-1}	NumTh	XFCNS	B_n	B_n^*
f-shift	$\zeta(x)$	||	M.FACT	e^{ix}	$(-1)^x$	$x!$
unshifted	NEXTP	PRIME?	FACTORS	FIB	AGM	LINPOL
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	X.FN	MENU	Extended functions	Extended functions (Bessel, Bernoulli, Gamma, Elliptical, Orthogonal, etcetera) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Prime_numbers.pdf	*Mathematics*		X.FN	
F1	NEXTP	Function (monadic)	Next prime	Next prime of the integer X ; Info : Prime numbers are calculated only if X < 10^{308}, or NEXTP raises Error 1 -- An argument exceeds the function domain (may depend on flag CPXRES and SPCRES)	*Mathematics*		NEXTP	
F2	PRIME?	Command (logical)	Primality test	Test X is a prime number (must be integer) -- see https://en.wikipedia.org/wiki/Miller%E2%80%93Rabin_primality_test ; Info : Miller-Rabin probabilistic primality test is used (25 repetitions) ; PRIME? is correct up to 3 317 044 064 679 887 385 961 980 ; above that limit there are no false negatives, but there is a very low probability of false positives (albeit no known cases)	*Programming*		PRIME?	
F3	FACTORS	Function (monadic)	Prime factors	Prime factors of the integer input in X ; factors are calculated in Long integer, stored as Real number (34 digits) and returned as a 2 row matrix (row 1 contains the primes, row 2 contains the powers) ; shows status, number being tested and last factor found ; interrupt by [EXIT] ; registers G, H, K are used to store the last three factors, in Long integer (register K stores the remaining number to be factorised after interrupt) -- see https://en.wikipedia.org/wiki/Pollard's_rho_algorithm ; https://en.wikipedia.org/wiki/Shanks%27s_square_forms_factorization ; Info : Pollard's rho algorithm and Shanks's square forms factorization are used ; prime factors will be accurate up to 3 317 044 064 679 887 385 961 980 ; for input values > 34 digits, the long integer factors are saved in DATA/<YYYYMMDD-HHMMSS00>.REGS.TSV ; during execution, status info may be shown: Factors: Small prime trial: p = Factors: Perfect Sq trial: p = Factors: Shanks/Pollard↑: n = Factors: Shanks/Pollard↓: n =	*Integers*		FACTORS	
F4	FIB	Function (monadic)	Fibonacci number	Fibonacci number n, where n = X -- see https://en.wikipedia.org/wiki/Fibonacci_sequence	*Mathematics*		FIB	
F5	AGM	Function (dyadic)	Arithmetic geometric mean	Arithmetic geometric mean of X and Y	*Mathematics*		AGM	
F6	LINPOL	Function (triadic)	Linear interpolation	Linear interpolation ; also works for Complex numbers and Dates ; Info : <from> ENTER <towards> ENTER <at> (fraction) LINPOL	*Mathematics*		LINPOL	
fF1	ζ(x)	Function (monadic)	Riemann's Zeta for real arguments	Riemann's Zeta for real arguments -- see http://mathworld.wolfram.com/RiemannZetaFunction.html	*Mathematics*		ζ(x)	
fF2	||	Function (dyadic)	Parallel impedance	Parallel impedance : (X × Y) / (X + Y)	*Electrical engineering and characters*		||	
fF3	M.FACT	Function (monadic)	Multiply (prime) factors	Multiply (prime) factors from a 2 row matrix in X (row 1 contains the factors, row 2 contains the powers) ; Info : E.g. use FACTORS matrix as input in X	*Integers*		M.FACT	
fF4	$e^{i\times}$	Function (monadic)	Euler's formula	Rotate complex unit vector by X radians : $e^{i\times}$ = cos(x) + i sin(x) ; Info : i or j displayed in stack and on soft buttons	*Mathematics*	CPXj	$e^{i\times}$	
fF5	$(-1)^{\times}$	Function (monadic)	Cosine of πx	Cosine of πx ; for complex parameter : $(-1)^{\times}$ = e^(i×π×x) = COS(π×x) + i×SIN(π×x) ; Info : Esp. for non-integer x	*Mathematics*		$(-1)^{\times}$	
fF6	x!	Function (monadic)	Factorial x! or Γ(x+1)	For Long integers : x! ; for Reals : Γ(x+1) ; Info : Max integer: 450 (up to 1000 digits accurate) ; max real : 2123.549 956 662 463 236 31 ; integers > max are converted to reals	*Mathematics*		x!	
gF1	g_d	Function (monadic)	Gudermannian function	Gudermannian function -- see http://en.wikipedia.org/wiki/Gudermannian_function	*Mathematics*		g_d	
gF2	g_d^{-1}	Function (monadic)	Inverse Gudermannian function	Inverse Gudermannian function -- see http://en.wikipedia.org/wiki/Gudermannian_function	*Mathematics*		g_d^{-1}	
gF3	NumTh	MENU	Number theory functions	Number theory functions -- see https://en.wikipedia.org/wiki/Divisor_function	*Mathematics*		NumTh	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF4	XFCNS	MENU	Extended functions	Extended accuracy functions for compounded input from three or six consecutive registers, effectively to 1000 digits for new models and simulator, but function not available on DM42 hardware ; when working from the stack, the compound result overwrites X, Y, Z, but when working from other registers, the compound result is pushed onto the stack ; Y will contain Long integer ; when menu XFCNS is open, setting HIDE is ignored ; Split screen : Displaying X×Y+Z= <value> and T×A+B= <value> (or "Invalid register type/angle") when menu XFCNS is open (on new stack input, using ALL notation ; Info : extended accuracy functions are defined for (compound) real input and output only, or will result in NaN (Not a Number) or Error 31 -- Input data types do not match ; when menu XFCNS is open, if XYZ contains result in Virtual compound data type, SHOW displays X : XY+Z = <value> and ditto for T : TA+B and for the dedicated triple register storage, e.g. R90 : FMA: (fused multiply-add) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Extended accuracy*		XFCNS	
gF5	B_n	Function (monadic)	Bernoulli number (new definition)	Bernoulli number (new definition)	*Mathematics*		B_n	
gF6	B_n^*	Function (monadic)	Bernoulli number (old definition)	Bernoulli number (old definition)	*Mathematics*		B_n^*	

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p1	X.FN	Link
F1	NEXTP	
F2	PRIME?	
F3	FACTORS	
F4	FIB	
F5	AGM	
F6	LINPOL	
fF1	ζ(x)	
fF2	||	
fF3	M.FACT	
fF4	e^{ix}	
fF5	$(-1)^x$	
fF6	x!	
gF1	g_d	
gF2	g_d^{-1}	
gF3	NumTh	https://47calc.com/doc/R47/Menus/R47v0_Menu_NumTh_page_1.pdf
gF4	XFCNS	https://47calc.com/doc/R47/Menus/R47v0_Menu_XFCNS_page_1.pdf
gF5	B_n	
gF6	B_n^*	

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X.FN	Extended functions					
g-shift	Ellipt	Orthog	$J_y(x)$	$Y_y(x)$	erf	erfc
f-shift	W_m	W_p	W^{-1}	I_{xyz}	$\beta(x,y)$	LNβ
unshifted	γ_{xy}	Γ_{xy}	$I\Gamma_p$	$I\Gamma_q$	$\Gamma(x)$	LNΓ
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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	X.FN	MENU	Extended functions	Extended functions (Bessel, Bernoulli, Gamma, Elliptical, Orthogonal, etcetera) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Prime_numbers.pdf	*Mathematics*		X.FN	
F1	γ_{xy}	Function (dyadic)	Lower incomplete Gamma function	Lower incomplete Gamma function -- see https://en.wikipedia.org/wiki/Incomplete_gamma_function	*Mathematics*		γ_{xy}	
F2	Γ_{xy}	Function (dyadic)	Upper incomplete Gamma function	Upper incomplete Gamma function -- see https://en.wikipedia.org/wiki/Incomplete_gamma_function	*Mathematics*		Γ_{xy}	
F3	$I\Gamma_p$	Function (dyadic)	Lower regularised incomplete Gamma function	Lower regularised incomplete Gamma function (P) -- see https://mathworld.wolfram.com/RegularizedGammaFunction.html	*Mathematics*		$I\Gamma_p$	
F4	$I\Gamma_q$	Function (dyadic)	Upper regularised incomplete Gamma function	Upper regularised incomplete Gamma function (Q) -- see https://mathworld.wolfram.com/RegularizedGammaFunction.html	*Mathematics*		$I\Gamma_q$	
F5	$\Gamma(x)$	Function (monadic)	Gamma function	Gamma function	*Mathematics*		$\Gamma(x)$	
F6	LNΓ	Function (monadic)	Natural logarith of Gamma function	Natural logarith of Gamma function	*Mathematics*		LNΓ	
fF1	W_m	Function (monadic)	Lambert's W function (negative)	Lambert's W function (negative branch) ; m = minus) -- see http://en.wikipedia.org/wiki/Lambert_W_function	*Mathematics*		W_m	
fF2	W_p	Function (monadic)	Lambert's W function (principal)	Lambert's W function (principal branch) -- see http://mathworld.wolfram.com/LambertW-Function.html	*Mathematics*		W_p	
fF3	W^{-1}	Function (monadic)	Inverse of Lambert's W function (principal)	Inverse of Lambert's W function (principal branch, ≥ -1)	*Mathematics*		W^{-1}	
fF4	I_{xyz}	Function (triadic)	Regularised (incomplete) Beta function	Regularised (incomplete) Beta function -- see https://en.wikipedia.org/wiki/Beta_function	*Mathematics*		I_{xyz}	
fF5	$\beta(x,y)$	Function (dyadic)	Euler's Beta function	Euler's Beta function	*Mathematics*		$\beta(x,y)$	
fF6	LNβ	Function (dyadic)	Natural logarith of Euler's Beta function	Natural logarith of Euler's Beta function	*Mathematics*		LNβ	
gF1	Ellipt	MENU	Elliptical functions	Elliptical functions ; Ref : https://47calc.com/doc/Application%20Notes/AN0023_C47_R47_WGR_JM_DE_Elliptic_Incl_Anx1.pdf	*Mathematics*		ELLIPT	
gF2	Orthog	MENU	Orthogonal polynomials	Orthogonal polynomials	*Mathematics*		ORTHOG	
gF3	$J_y(x)$	Function (monadic)	Bessel function of the 1st kind	Bessel function of the 1st kind and order y -- see http://en.wikipedia.org/wiki/Bessel_function	*Mathematics*		$J_y(x)$	
gF4	$Y_y(x)$	Command	Bessel function of the 2nd kind	Bessel function of the 2nd kind and order y -- see http://en.wikipedia.org/wiki/Bessel_function	*Mathematics*		$Y_y(x)$	
gF5	erf	Function (monadic)	Error function	Error function	*Mathematics*		erf	
gF6	erfc	Function (monadic)	Complementary error function	Complementary error function	*Mathematics*		erfc	

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p2	X.FN	Link
F1	γ_{xy}	
F2	Γ_{xy}	
F3	$I\Gamma_p$	
F4	$I\Gamma_q$	
F5	$\Gamma(x)$	
F6	LNΓ	
fF1	W_m	
fF2	W_p	
fF3	W^{-1}	
fF4	I_{xyz}	
fF5	$\beta(x,y)$	
fF6	LNβ	
gF1	Ellipt	https://47calc.com/doc/R47/Menus/R47v0_Menu_Ellipt_page_1.pdf
gF2	Orthog	https://47calc.com/doc/R47/Menus/R47v0_Menu_Orthog_page_1.pdf
gF3	$J_y(x)$	
gF4	$Y_y(x)$	
gF5	erf	
gF6	erfc	

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X.FN	Extended functions					
g-shift						
f-shift						
unshifted	MIN	MAX				
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Prime_numbers.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	X.FN	MENU	Extended functions	Extended functions (Bessel, Bernoulli, Gamma, Elliptical, Orthogonal, etcetera) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Prime_numbers.pdf	*Mathematics*		X.FN	
F1	MIN	Function (dyadic)	Minimum	Minimum of X and Y	*Mathematics*		MIN	
F2	MAX	Function (dyadic)	Maximum	Maximum of X and Y	*Mathematics*		MAX	
F3								
F4								
F5								
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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XFCNS	Extended functions					
g-shift	X→XFN	XDRG	XATAN2	XASIN	XACOS	XATAN
f-shift	DEG ⊙	RAD ○	Xπ	XSIN	XCOS	XTAN
unshifted	X⇒DEG	X⇒RAD	XADD	XSUB	XMULT	XDIV
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0016_C47_R47_The_1000_digit_issue.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	XFCNS	MENU	Extended functions	Extended accuracy functions for compounded input from three or six consecutive registers, effectively to 1000 digits for new models and simulator, but function not available on DM42 hardware ; when working from the stack, the compound result overwrites X, Y, Z, but when working from other registers, the compound result is pushed onto the stack ; Y will contain Long integer ; when menu XFCNS is open, setting HIDE is ignored ; Split screen : Displaying X×Y+Z= <value> and T×A+B= <value> (or "Invalid register type/angle") when menu XFCNS is open (on new stack input, using ALL notation ; Info : extended accuracy functions are defined for (compound) real input and output only, or will result in NaN (Not a Number) or Error 31 -- Input data types do not match ; when menu XFCNS is open, if XYZ contains result in Virtual compound data type, SHOW displays X : XY+Z = <value> and ditto for T : TA+B and for the dedicated triple register storage, e.g. R90 : FMA: (fused multiply-add) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Extended accuracy*		XFCNS	
F1	X⇒DEG	Function (monadic, XFN)	XFN : Set DEG tag or convert to DEG	Extended accuracy function : Set DEG tag or convert to DEG, for compound input from three consecutive stack registers, operates on X ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		X⇒DEG	
F2	X⇒RAD	Function (monadic, XFN)	XFN : Set RAD tag or convert to RAD	Extended accuracy function : Set RAD tag or convert to RAD, for compound input from three consecutive stack registers, operates on X ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		X⇒RAD	
F3	XADD	Function (dyadic, XFN)	XFN : Add	Extended accuracy function : Add, for compound input from six consecutive stack registers : (T × A + B) + (X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XADD to [+] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XADD	
F4	XSUB	Function (dyadic, XFN)	XFN : Subtract	Extended accuracy function : Subtract, for compound input from six consecutive stack registers : (T × A + B) - (X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XSUB to [-] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XSUB	
F5	XMULT	Function (dyadic, XFN)	XFN : Multiply	Extended accuracy function : Multiply, for compound input from six consecutive stack registers : (T × A + B) × (X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XMULT to [×] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XMULT	
F6	XDIV	Function (dyadic, XFN)	XFN : Divide	Extended accuracy function : Divide, for compound input from six consecutive stack registers : (T × A + B) / (X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XDIV to [÷] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XDIV	
fF1	DEG ⊙	Setting (pgm)	Set ADM to DEG	Set Angular Display Mode to degrees mode (ADM = 0) ; Info : SBI ° is shown if flag SBadm is SET ; SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : °	*Angle tagging or conversion*	SBadm	DEG ⊙	ON
fF2	RAD ○	Setting (pgm)	Set ADM to RAD	Set Angular Display Mode to radians mode (ADM = 2) ; Info : SBI ∡ is shown if flag SBang and SBadm is SET ; SBI : r	*Angle tagging or conversion*	SBang	RAD ○	OFF

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
fF3	Xπ	Command (XFN)	XFN : pi	Extended accuracy command : Xπ, to push π onto the stack as a Virtual compound data type triplet with factor 1 of 1. × 10^{-999} in X, factor 2 of 1000 digits of π as 0/1.0 ; 0/1.0) ; Long integer in Y and term of 0. in Z ; load state file STATE/xfnToR47user.s47 to assign Xπ to f[R↓] (π) in USER mode ; Info : SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		Xπ	
fF4	XSIN	Function (monadic, XFN)	XFN : Sine	Extended accuracy function : Sine, for compound input from three consecutive stack registers : SIN(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XSIN to f[7] (SIN) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains ℂomplex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XSIN	
fF5	XCOS	Function (monadic, XFN)	XFN : Cosine	Extended accuracy function : Cosine, for compound input from three consecutive stack registers : COS(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XCOS to f[8] (COS) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains ℂomplex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XCOS	
fF6	XTAN	Function (monadic, XFN)	XFN : Tangent	Extended accuracy function : Tangent, for compound input from three consecutive stack registers : TAN(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XTAN to f[9] (TAN) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains ℂomplex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XTAN	
gF1	X→XFN	Command (XFN)	XFN : Convert X to compound	Extended accuracy functionVirtual compound data type (0/1.0-1.5 ; 0/1.0 ; 0/1.0) : Convert X to Virtual compound data type (1.0-1.5 ; 0 ; 1.0) triplet in X, Y, Z ; load state file STATE/xfnToR47user.s47 to assign X→XFN to g[R↓] (R↑) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains ℂomplex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		X→XFN	
gF2	XDRG	Function (monadic, cyclic, nonpgm, XFN)	XFN : Degrees-radians-gradians	Extended accuracy function : Degrees-radians-gradians, for compound input from three consecutive stack registers : DRG(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XDRG to [DRG] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains ℂomplex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XDRG	
gF3	XATAN2	Function (dyadic, XFN)	XFN : Expanded inverse tangent	Extended accuracy function : Expanded inverse tangent, for compound input from six consecutive stack registers : ARCTAN{(T × A + B) / (X × Y + Z)} ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; Info : Error 31 -- Input data types do not match -- is raised when input contains ℂomplex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XATAN2	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF4	XASIN	Function (monadic, XFN)	XFN : Arc sine	Extended accuracy function : Arc sine, for compound input from three consecutive stack registers : ARCSIN(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XASIN to g[7] (ASIN) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XASIN	
gF5	XACOS	Function (monadic, XFN)	XFN : Arc cosine	Extended accuracy function : Arc cosine, for compound input from three consecutive stack registers : ARCCOS(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XACOS to g[8] (ACOS) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XACOS	
gF6	XATAN	Function (monadic, XFN)	XFN : Arc tangent	Extended accuracy function : Arc tangent, for compound input from three consecutive stack registers : ARCTAN(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XATAN to g[9] (ATAN) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; displays : Taylor Iter: m/1000; Dig: n/1040, where m is iteration counter, n is number of digits, shown if flag MONIT is SET ; function not available on DM42 hardware	*Extended accuracy*		XATAN	

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XFCNS	Extended functions					
g-shift	X→XFN				XRDP	XRSD
f-shift	XCHS	XMOD	XMOD4	XXRTY	X10^X	Xe^X
unshifted	XSQR	XSQRT	X1/X	XPOWER	XLOG	XLN
Page 2	F1	F2	F3	F4	F5	F6

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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_XFCNS_page_3.pdf

Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0016_C47_R47_The_1000_digit_issue.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p2	XFCNS	MENU	Extended functions	Extended accuracy functions for compounded input from three or six consecutive registers, effectively to 1000 digits for new models and simulator, but function not available on DM42 hardware ; when working from the stack, the compound result overwrites X, Y, Z, but when working from other registers, the compound result is pushed onto the stack ; Y will contain Long integer ; when menu XFCNS is open, setting HIDE is ignored ; Split screen : Displaying X×Y+Z= <value> and T×A+B= <value> (or "Invalid register type/angle") when menu XFCNS is open (on new stack input, using ALL notation ; Info : extended accuracy functions are defined for (compound) real input and output only, or will result in NaN (Not a Number) or Error 31 -- Input data types do not match ; when menu XFCNS is open, if XYZ contains result in Virtual compound data type, SHOW displays X : XY+Z = <value> and ditto for T : TA+B and for the dedicated triple register storage, e.g. R90 : FMA: (fused multiply-add) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Extended accuracy*		XFCNS	
F1	XSQR	Function (monadic, XFN)	XFN : Square	Extended accuracy function : Square, for compound input from three consecutive stack registers : $(X \times Y + Z)^2$; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XSQR to [x^2] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XSQR	
F2	XSQRT	Function (monadic, XFN)	XFN : Square root	Extended accuracy function : Square root, for compound input from three consecutive stack registers : $\sqrt{(X \times Y + Z)}$; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XSQRT to [$\sqrt{x}$] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XSQRT	
F3	X1/X	Function (monadic, XFN)	XFN : Reciprocal	Extended accuracy function : Reciprocal, for compound input from three consecutive stack registers : 1 / (X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign X1/X to [1/x] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		X1/X	
F4	XPOWER	Function (dyadic, XFN)	XFN : y to the power x	Extended accuracy function : y to the power x, for compound input from six consecutive stack registers : $(T \times A + B)^{X \times Y + Z}$; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XPOWER to [y^x] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XPOWER	
F5	XLOG	Function (monadic, XFN)	XFN : Common logarithm	Extended accuracy function : Common logarithm, for compound input from three consecutive stack registers : LOG(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XLOG to [LOG] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XLOG	
F6	XLN	Function (monadic, XFN)	XFN : Natural logarithm	Extended accuracy function : Natural logarithm, for compound input from three consecutive stack registers : LN(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XLN to [LN] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XLN	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
fF1	XCHS	Function (monadic, XFN)	XFN : Change sign	Extended accuracy function : Change sign, for compound input from three consecutive stack registers : - (X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) and sign of X and Z is changed ; load state file STATE/xfnToR47user.s47 to assign XCHS to [CHS] in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XCHS	
fF2	XMOD	Function (dyadic, XFN)	XFN : Modulo	Extended accuracy function : Modulo, for compound input from six consecutive stack registers : MOD{(T × A + B), (X × Y + Z)} ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XMOD	
fF3	XMOD∡	Function (dyadic, XFN)	XFN : Modulo (angle)	Extended accuracy function : Modulo (angle), for compound input from three consecutive stack registers : MOD{(X × Y + Z), <full circle>}, where <full circle> value is derived from angle tag or Angular Display Mode ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XMOD∡	
fF4	XXRTY	Function (dyadic, XFN)	XFN : xth root	Extended accuracy function : xth root, for compound input from six consecutive stack registers : $\sqrt[X\times Y+Z]{(T \times A + B)}$; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign XXRTY to f[y^x] ($\sqrt[x]{y}$) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		XXRTY	
fF5	X10^X	Function (monadic, XFN)	XFN : 10 to the power x	Extended accuracy function : 10 to the power x, for compound input from three consecutive stack registers : $10^{X\times Y+Z}$; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign X10^X to f[LOG] (10^x) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		X10^X	
fF6	Xe^X	Function (monadic, XFN)	XFN : e to the power x	Extended accuracy function : e to the power x, for compound input from three consecutive stack registers : $e^{X\times Y+Z}$; returns compound result in X, Y, Z, where Y contains Long integer (0) ; load state file STATE/xfnToR47user.s47 to assign Xe^X to f[LN] (e^x) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		Xe^X	
gF1	X→XFN	Command (XFN)	XFN : Convert X to compound	Extended accuracy functionVirtual compound data type (0/1.0-1.5 ; 0/1.0 ; 0/1.0) : Convert X to Virtual compound data type (1.0-1.5 ; 0 ; 1.0) triplet in X, Y, Z ; load state file STATE/xfnToR47user.s47 to assign X→XFN to g[R↓] (R↑) in USER mode ; Info : Error 31 -- Input data types do not match -- is raised when input contains Complex number (2.0-2.5) ; SBI ⧖ is displayed during calculation ; function not available on DM42 hardware	*Extended accuracy*		X→XFN	
gF2								
gF3								
gF4								
gF5	XRDP	Function (monadic, XFN)	XFN : Round to decimal places	Extended accuracy function : Round real number to number of decimal places, subject to rounding mode (RMODE), for compound input from three consecutive stack registers : RDP(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; TAM : XRDP ____ TamNonReg menu ; Range is [0, 1034] ; Info : function not available on DM42 hardware	*Extended accuracy*		XRDP	

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
gF6	XRSD	Function (monadic, XFN)	XFN : Round to significant digits	Extended accuracy function : Round real number to number of significant digits, subject to rounding mode (RMODE), for compound input from three consecutive stack registers : RSD(X × Y + Z) ; returns compound result in X, Y, Z, where Y contains Long integer (0) ; TAM : XRSD ____ TamNonReg menu ; Range is [0, 1034] ; Info : function not available on DM42 hardware	*Extended accuracy*		XRSD	

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XFCNS	Extended functions					
g-shift	dLrgLI ▣	dZ.0 □				
f-shift						
unshifted	3STO	3RCL	3DROP	3SWAP	3DUP	
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Ref 1 https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf

Ref 2 https://47calc.com/doc/Application%20Notes/AN0016_C47_R47_The_1000_digit_issue.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p3	XFCNS	MENU	Extended functions	Extended accuracy functions for compounded input from three or six consecutive registers, effectively to 1000 digits for new models and simulator, but function not available on DM42 hardware ; when working from the stack, the compound result overwrites X, Y, Z, but when working from other registers, the compound result is pushed onto the stack ; Y will contain Long integer ; when menu XFCNS is open, setting HIDE is ignored ; Split screen : Displaying X×Y+Z= <value> and T×A+B= <value> (or "Invalid register type/angle") when menu XFCNS is open (on new stack input, using ALL notation ; Info : extended accuracy functions are defined for (compound) real input and output only, or will result in NaN (Not a Number) or Error 31 -- Input data types do not match ; when menu XFCNS is open, if XYZ contains result in Virtual compound data type, SHOW displays X : XY+Z = <value> and ditto for T : TA+B and for the dedicated triple register storage, e.g. R90 : FMA: (fused multiply-add) ; Ref : https://47calc.com/doc/R47/Reference/R47v0_Datatypes.pdf	*Extended accuracy*		XFCNS	
F1	3STO	Command	Store X, Y, Z	Store X, Y, Z to three consecutive registers, specify first register using TAM ; TAM : 3STO __ Tam menu	*Stack*		3STO	
F2	3RCL	Command	Recall X, Y, Z	Recall X, Y, Z from three consecutive registers, specify first register using TAM ; TAM : 3RCL __ Tam menu	*Stack*		3RCL	
F3	3DROP	Command	Drop X, Y, Z	Drop X, Y, Z	*Stack*		3DROP	
F4	3SWAP	Command	Swap X, Y, Z and T, A, B	Swap X, Y, Z and T, A, B	*Stack*		3SWAP	
F5	3DUP	Command	Duplicate X, Y, Z to T, A, B	Duplicate X, Y, Z to T, A, B	*Stack*		3DUP	
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1	dLrgLI ▣	Setting	Large Long integers display	Switch on (large) Long integers to always display in large text ; not programmable - in PEM, use flag dLrgLI ; Info : dLrgLI is overruled by dZ.0	*Display*	dLrgLI	dLrgLI ▣	ON
gF2	dZ.0 □	Setting	Display Long integers as Real	Switch on displaying Long integers as Real ; not programmable - in PEM, use flag dZ.0 ; Info : dZ.0 overrules dLrgLI ; Prefix : ℤ : ; radix not displayed if DSP = 0 ; larger values are displayed using scientific notation and indicated as Long integer by prefix "Z:" even if dZ.0 is CLEAR ; button shows current radix preference	*Integers*	dZ.0	dZ.0 □	OFF
gF3								
gF4								
gF5								
gF6								

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YESNO	Confirmation					
g-shift						
f-shift						
unshifted		YES			NO	
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Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_Ymmv_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	YESNO	MENU (dialog)	Confirmation	Confirmation menu ; Info : YESNO menu is typically activated by RESET on [CLR.1] gF1	*User interface*			
F1								
F2	YES	Command	Yes	Respond : Yes	*User interface*			
F3								
F4								
F5	NO	Command	No	Respond : No	*User interface*			
F6								
fF1								
fF2								
fF3								
fF4								
fF5								
fF6								
gF1								
gF2								
gF3								
gF4								
gF5								
gF6								

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Ymmv:	Mileage conversions					
g-shift	mpg_{UK} ←	→ ℓ/100km	E/100mi ←	→ $mpge_{UK}$	mi/E ←	→ E/100mi
f-shift	mpg_{US} ←	→ ℓ/100km	E/100mi ←	→ $mpge_{US}$	E/100km ←	→ E/100mi
unshifted	km/ℓ ←	→ ℓ/100km	E/100km ←	→ km/$ℓ_e$	km/E ←	→ E/100km
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Prev menu https://47calc.com/doc/R47/Menus/R47v0_Menu_YESNO_page_1.pdf

Next menu https://47calc.com/doc/R47/Menus/R47v0_Menu_alpha_page_1.pdf

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Level	Label	Type	FullName	Extended description	*Category*	Flag	Catalog	Default
Menu p1	Ymmv:	MENU	Mileage conversions	Convert between units of mileage ("Your mileage may vary") ; Info : "E" designates "kWh" ; Flag $CONV_{HP}$ may be SET for <to> ←|→ <to> unit conversion buttons ; CLEAR for <from> →|← <from> unit conversion buttons (default SET)	*Mileage conversions*		Ymmv:	
F1	ℓ/100km→km/ℓ (km/ℓ ←)	Function (monadic, linked)	ℓ/100km to km/ℓ	Convert litre per 100 kilometre to kilometre per litre ; TI : km/ℓ:	*Fuel economy conversions*	$CONV_{HP}$		
F2	km/ℓ→ℓ/100km (→ ℓ/100km)	Function (monadic, linked)	km/ℓ to ℓ/100km	Convert kilometre per litre to litre per 100 kilometre ; TI : ℓ/100km:	*Fuel economy conversions*	$CONV_{HP}$		
F3	km/$ℓ_e$→kWh/100km (E/100km ←)	Function (monadic, linked)	km/$ℓ_e$ to kWh/100km	Convert kilometre per litre equivalent to kiloWatt-hour per 100 kilometre ; TI : kWh/100km: ; Info : single = E/100km←	*EV economy conversions*	$CONV_{HP}$		
F4	kWh/100km→km/$ℓ_e$ (→ km/$ℓ_e$)	Function (monadic, linked)	kWh/100km to km/$ℓ_e$	Convert kiloWatt-hour per 100 kilometre to kilometre per litre equivalent ; TI : km/$ℓ_e$:	*EV economy conversions*	$CONV_{HP}$		
F5	kWh/100km→km/kWh (km/E ←)	Function (monadic, linked)	kWh/100km to km/kWh	Convert kiloWatt-hour per 100 kilometre to kilometre per kiloWatt-hour ; TI : km/kWh: ; Info : single = km/E←	*EV economy conversions*	$CONV_{HP}$		
F6	km/kWh→kWh/100km (→ E/100km)	Function (monadic, linked)	km/kWh to kWh/100km	Convert kilometre per kiloWatt-hour to kiloWatt-hour per 100 kilometre ; TI : kWh/100km: ; Info : single = E/100km←	*EV economy conversions*	$CONV_{HP}$		
fF1	ℓ/100km→mpg_{US} (mpg_{US} ←)	Function (monadic, linked)	ℓ/100km to mpg_{US}	Convert litre per 100 kilometre to mile per gallon US ; TI : mpg_{US}:	*Fuel economy conversions*	$CONV_{HP}$		
fF2	mpg_{US}→ℓ/100km (→ ℓ/100km)	Function (monadic, linked)	mpg_{US} to ℓ/100km	Convert mile per gallon US to litre per 100 kilometre ; TI : ℓ/100km:	*Fuel economy conversions*	$CONV_{HP}$		
fF3	$mpge_{US}$→kWh/100mi (E/100mi ←)	Function (monadic, linked)	$mpge_{US}$ to kWh/100mi	Convert mpg gasoline equivalent US to kiloWatt-hour per 100 mile ; TI : kWh/100mi: ; Info : single = E/100mi←	*EV economy conversions*	$CONV_{HP}$		
fF4	kWh/100mi→$mpge_{US}$ (→ $mpge_{US}$)	Function (monadic, linked)	kWh/100mi to $mpge_{US}$	Convert kiloWatt-hour per 100 mile to mpg gasoline equivalent US ; TI : $mpge_{US}$:	*EV economy conversions*	$CONV_{HP}$		
fF5	kWh/100mi→kWh/100km (E/100km ←)	Function (monadic, linked)	kWh/100mi to kWh/100km	Convert kiloWatt-hour per 100 mile to kiloWatt-hour per 100 kilometre ; TI : kWh/100km: ; Info : single = E/100km←	*EV economy conversions*	$CONV_{HP}$		
fF6	kWh/100km→kWh/100mi (→ E/100mi)	Function (monadic, linked)	kWh/100km to kWh/100mi	Convert kiloWatt-hour per 100 kilometre to kiloWatt-hour per 100 mile ; TI : kWh/100mi: ; Info : single = E/100mi←	*EV economy conversions*	$CONV_{HP}$		
gF1	ℓ/100km→mpg_{UK} (mpg_{UK} ←)	Function (monadic, linked)	ℓ/100km to mpg_{UK}	Convert litre per 100 kilometre to mile per gallon UK ; TI : mpg_{UK}:	*Fuel economy conversions*	$CONV_{HP}$		
gF2	mpg_{UK}→ℓ/100km (→ ℓ/100km)	Function (monadic, linked)	mpg_{UK} to ℓ/100km	Convert mile per gallon UK to litre per 100 kilometre ; TI : ℓ/100km:	*Fuel economy conversions*	$CONV_{HP}$		
gF3	$mpge_{UK}$→kWh/100mi (E/100mi ←)	Function (monadic, linked)	$mpge_{UK}$ to kWh/100mi	Convert mpg gasoline equivalent UK to kiloWatt-hour per 100 mile ; TI : kWh/100mi: ; Info : single = E/100mi←	*EV economy conversions*	$CONV_{HP}$		
gF4	kWh/100mi→$mpge_{UK}$ (→ $mpge_{UK}$)	Function (monadic, linked)	kWh/100mi to $mpge_{UK}$	Convert kiloWatt-hour per 100 mile to mpg gasoline equivalent UK ; TI : $mpge_{UK}$:	*EV economy conversions*	$CONV_{HP}$		
gF5	kWh/100mi→mi/kWh (mi/E ←)	Function (monadic, linked)	kWh/100mi to mi/kWh	Convert kiloWatt-hour per 100 mile to mile per kiloWatt-hour ; TI : mi/kWh: ; Info : single = mi/E←	*EV economy conversions*	$CONV_{HP}$		
gF6	mi/kWh→kWh/100mi (→ E/100mi)	Function (monadic, linked)	mi/kWh to kWh/100mi	Convert mile per kiloWatt-hour to kiloWatt-hour per 100 mile ; TI : kWh/100mi: ; Info : single = E/100mi←	*EV economy conversions*	$CONV_{HP}$		

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