

R47v0 Ref page : Fractions

Label	Fullname	Type	Default	Annunciator	Extended description
MULT×	Multiplication symbol	Flag	SET	<no annunciator>	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
FDIGS	Set significant digits for fractions	Setting (pgm)	34	[+≈]	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
.d	Decimal (Real) or Date	Function (monadic)			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
a b/c	Fractions modes	Setting (cyclic, pgm, stack)	OFF	a^b/n ; b/n ; [+≈] ; $a^b/c \times I$; $b/c \times I$; [+≈]	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*]) ; 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> [.] [.] <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
DMX	Set max denominator for fractions [TAM]	Setting (pgm)	64	/nnnn ; /max	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 DMXmax ; TAM : DMX ____ TamNonRegMax menu ; range is [2, 9999] or 0, indicating DMXmax = 32500 ; SBI is shown if flag SBfrac is SET
DMX	Max denominator for fractions	Variable (longint, dropped)	64	/nnnn ; /max	Dropped LongInteger variable (read only) for the maximum denominator for fractions (DMX) ; 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
DENFIX	Denominator fixed	Flag	CLEAR	[+f]	SET for fixed denominator (set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] fF5 (DMX)) 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
DENANY	Denominator any	Flag	CLEAR	[+×]	SET for any denominator (up to value set interactively from menu DISP (DMX TAM variant) and from menu [INFO.3] fF5 (DMX)) 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
PROPFR	Proper fractions	Flag	SET	a^b/n ; b/n ; [+≈] ; $a^b/c \times I$; $b/c \times I$; [+≈]	SET for proper fractions (mixed fractions) ; CLEAR for improper fractions

Label	Fullname	Type	Default	Annunciator	Extended description
FRACT	Fractions mode	Flag	CLEAR	a^b/n ; b/n ; [+ $\approx$]	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] fF5 (DMX)) ; prefixes < and > may be shown as needed for rational fractions ; also see flag IRFRAC; SBI $\approx$ indicates FDIGS < 34 ; SBI is shown if flag SBfrac is SET ; exit fraction modes by .d or CLRMOD (longerpress [EXIT])
IRFRAC	Irrational fractions mode	Flag	CLEAR	$a^b/c \times I$; $b/c \times I$; [+ $\approx$]	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 $\times I$ or $\cdot I$ 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 $\approx$ + <approximation> ; multiplication symbol SET for displaying multiplication symbol $\times$; CLEAR for displaying multiplication symbol $\cdot$ or SET for displaying multiplication symbol $\times$; CLEAR for displaying multiplication symbol $\cdot$ according to flag MULT $\times$; SBI $\approx$
IRFR	Irrational fractions mode preferred	Flag (system)	CLEAR	<no annunciator>	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

Unlike the normal fraction mode which always gives fractional results with < and > indicators, IRFRAC gives a fractional result only if a simple fraction exists, otherwise leaving the stack register in decimal if not ; DMX and PROPFR are respected, the other fraction flags are not applicable

	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7
DMX	1200	1200	1200	1200	1200	1200	1200
SBI	/1200 $\times$	$b/1200 \times$	$b/1200f$	$b/1200$	$b/1200 \times I$	$b/1200 \times I$	$b/1200 \times I$
FRACT	--	FRACT	FRACT	FRACT	--	--	--
IRFRAC	--	--	--	--	IRFRAC	IRFRAC	IRFRAC
PROPFR	--	--	--	--	--	--	--
DENANY	--	--	--	DENANY	--	--	DENANY
DENFIX	--	--	DENFIX	--	--	DENFIX	--
1/950	0.00105263...	> 1/1200	> 1/1200	< 1/950	1/950	1/950	1/950
1/1201	0.00083264...	< 1/1200	< 1/1200	< 1/1200	8.326...E-04	8.326...E-04	8.326...E-04
1/301	0.00332226...	< 1/300	< 4/1200	> 1/301	1/301	1/301	1/301
1/45	0.02222222...	< 9/400	< 27/1200	< 1/45	1/45	1/45	1/45
$\pi/45$	0.06981317...	< 7/100	< 84/1200	< 71/1017	$\pi/45$	$\pi/45$	$\pi/45$

DENANY	DENFIX	PROPFR	IRFRAC	SBI (DMX = 1234)	Meaning
--	--	--	--	$b/1234 \times$	Means improper fractions possible, denominator can be 1234, 617 or 2
--	DENFIX	PROPFR	--	$a^b/1234f$	Means proper (mixed) fractions possible, denominator can only be 1234
DENANY	--	PROPFR	--	$a^b/1234$	Means proper (mixed) fractions possible, denominator can be any integer 2-1234
--	--	--	IRFRAC	$b/1234 \times I$	Means improper fractions possible, denominator can be any integer 2-1234 with a multiplier of $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$, ϕ , π^{-2} , π^{-1} , $\sqrt{\pi}$, π , π^2 , e^{-2} , e^{-1} , e and e^2 (with tolerance 10^{-24})