

# 2FRAC

## Display



(HP-41CX, Hewlett Packard 1983 and DM41X, [SwissMicros](#) 2020)

## Overview<sup>1</sup>

Program 2FRAC determines the fractions of a given decimal number. The numerator and denominator are calculated on basis of finding the Greatest Common Factor (GCF), equivalent to the Greatest Common Divider (GCD). If it exists, it will be reduced by dividing both the numerator and denominator by the GCF. Here is an example for 0,375:

$$\frac{0,375}{1} = \frac{375}{1000} = \frac{3 \cdot 125}{8 \cdot 125} = \frac{3}{8}$$

in which the GCF is 125. Finding 125 is found by iterative division.

## Examples: 2FRAC

KEYSTROKES	DISPLAY	COMMENTS
0,375	0,375	Enter a decimal number
<b>[XEQ]</b> <b>[ALPHA]</b> 2FRAC <b>[ALPHA]</b>	3	Start; the numerator is shown first
	8	After a pause, the denominator is shown
<b>[π]</b>	3,14159	Try for PI
<b>[R/S]</b>	104.348,0000	Numerator for PI
	33.215,0000	Denominator for PI
1,10101 <b>[R/S]</b>	109.992,0000	Try for another one; new numerator
	99.901,0000	After a pause, the denominator is shown
2 <b>[√x]</b>	1,41421	Try square root of 2
<b>[R/S]</b>	47.321,0000	Numerator for $\sqrt{2}$
	33.461,0000	Denominator for $\sqrt{2}$
<b>[X&lt;&gt;Y]</b>	47.321,0000	Forgot the numerator? Toggle X and Y

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## Program Listing

The listing of program 2FRAC is given below:

```

01 ▀LBL "2FRAC"          13 LASTX                25 STO 02                37 ▀LBL 01
02 STO 00                14 ▀LBL 00                26 RCL 00                38 RCL 02
03 INT                   15 RDN                    27 *                     39 RCL 00
04 ,                     16 1/X                    28 ,5                     40 *
05 STO 01                17 FRC                    29 +                      41 PSE
06 1                     18 RCL 01                 30 INT                   42 RCL 02
07 STO 02                19 RCL 02                 31 RCL 02                43 END
08 RCL 00                20 STO 01                 32 /
09 R^                    21 LASTX                  33 RCL 00
10 X=Y?                  22 INT                    34 -
11 GTO 01                23 *                      35 X#0?
12 -                     24 +                      36 GTO 00

```

(56 bytes)

## Registers, Labels and Flags

REGISTERS	COMMENTS
R00	Decimals / Numerator base
R01	Previous value for R02
R02	GCF iteration / Denominator

LABELS	COMMENTS
LBL00	Loop to find the GCF
LBL01	Display outcome

FLAGS	COMMENTS
-	Flags not used

## Downloads

The RAW/TXT format of the program is available via the website: [2FRAC](#) (in zip file).