Dave's Math Tables: *Fraction to Decimal Conversion*

UP

(Math | General | Arithmetic | Fraction to Decimal Conversion)

Fraction to Decimal Conversion Tables

Important Note: any span of numbers that is underlined signifies that those numbes are repeated. For example, 0.09 signifies 0.090909....

Only fractions in lowest terms are listed. For instance, to find 2/8, first simplify it to 1/4 then search for it in the table below.

fraction = decimal			
1/1 = 1			
1/2 = 0.5			
1/3 = 0.3	2/3 = 0.6		
1/4 = 0.25	3/4 = 0.75		
1/5 = 0.2	2/5 = 0.4	3/5 = 0.6	4/5 = 0.8
1/6 = 0.16	5/6 = 0.83		
1/7 = 0.142857	2/7 = 0.285714	3/7 = 0.428571	4/7 = 0.571428
	5/7 = 0.714285	6/7 = 0.857142	
1/8 = 0.125	3/8 = 0.375	5/8 = 0.625	7/8 = 0.875
1/9 = 0.1	2/9 = 0.2	4/9 = 0.4	5/9 = 0.5
	7/9 = 0.7	8/9 = 0.8	
1/10 = 0.1	3/10 = 0.3	7/10 = 0.7	9/10 = 0.9
1/11 = 0.09	2/11 = 0.18	3/11 = 0.27	4/11 = 0.36
	5/11 = 0.45	6/11 = 0.54	7/11 = 0.63
	8/11 = 0.72	9/11 = 0.81	10/11 = 0.90
1/12 = 0.083	5/12 = 0.416	7/12 = 0.583	11/12 = 0.916
1/16 = 0.0625	3/16 = 0.1875	5/16 = 0.3125	7/16 = 0.4375
	11/16 = 0.6875	13/16 = 0.8125	15/16 = 0.9375
1/32 = 0.03125	3/32 = 0.09375	5/32 = 0.15625	7/32 = 0.21875
	9/32 = 0.28125	11/32 = 0.34375	13/32 = 0.40625
	15/32 = 0.46875	17/32 = 0.53125	19/32 = 0.59375
	21/32 = 0.65625	23/32 = 0.71875	25/32 = 0.78125
	27/32 = 0.84375	29/32 = 0.90625	31/32 = 0.96875

Need to convert a repeating decimal to a fraction? Follow these examples:
Note the following pattern for repeating decimals:
0.2222222... = 2/9
0.54545454... = 54/99
0.298298298... = 298/999
Division by 9's causes the repeating pattern.

Note the pattern if zeros preceed the repeating decimal:
0.022222222... = 2/90
0.0005454545454... = 54/99000
0.00298298298298... = 298/99900
Adding zero's to the denominator adds zero's before the repeating decimal.

To convert a decimal that begins with a non-repeating part, such as 0.2145645645645645..., to a fraction, write it as the sum of the non-repeating part and the repeating part.
0.21 + 0.00456456456456456...
Next, convert each of these decimals to fractions. The first decimal has a divisor of power ten. The second decimal (which repeats) is convirted according to the pattern given above.
21/100 + 456/99900
Now add these fraction by expressing both with a common divisor
20979/99900 + 456/99900
and add.
21435/99900
Finally simplify it to lowest terms
1429/6660
and check on your calculator or with long division.
= 0.2145645645...