

Decimals & Fractions

Unit 1 - Day 1

How to convert from a Decimal to a Fraction

Tenths, 100^{ths}, 1,000^{ths}

$$\begin{array}{l}
 .4 \\
 \hline
 4 \\
 \hline
 10 \\
 \hline
 2 \\
 \hline
 5
 \end{array}
 \div 2 \quad
 \begin{array}{l}
 .82 \\
 \hline
 82 \\
 \hline
 100 \\
 \hline
 41 \\
 \hline
 50
 \end{array}
 \div 2 \quad
 \begin{array}{l}
 .35 \\
 \hline
 35 \\
 \hline
 100 \\
 \hline
 7 \\
 \hline
 20
 \end{array}$$

More Examples

$$\begin{array}{l}
 .15 \\
 \hline
 15 \\
 \hline
 100 \\
 \hline
 3 \\
 \hline
 20
 \end{array}
 \div 5 \quad
 \begin{array}{l}
 .6 \\
 \hline
 6 \\
 \hline
 10 \\
 \hline
 3 \\
 \hline
 5
 \end{array}
 \div 2 \quad
 \begin{array}{l}
 845 \\
 \hline
 845 \\
 \hline
 1000 \\
 \hline
 169 \\
 \hline
 200
 \end{array}
 \div 5$$

How to convert Fractions to Decimals

$$\begin{array}{r}
 7 \\
 25 \\
 \hline
 20 \overline{) 7.00} \\
 \underline{-60} \\
 100 \\
 \underline{-100} \\
 0
 \end{array}
 \quad
 \begin{array}{r}
 1 \\
 8 \\
 \hline
 125 \\
 8 \overline{) 1.000} \\
 \underline{-8} \\
 20 \\
 \underline{-16} \\
 40 \\
 \underline{-40} \\
 0
 \end{array}$$

More Practice

$$\begin{array}{r}
 5 \\
 12 \\
 \hline
 12 \overline{) 5.000} \\
 \underline{-24} \\
 48 \\
 \underline{-48} \\
 0
 \end{array}
 \quad
 \begin{array}{r}
 3 \\
 20 \\
 \hline
 20 \overline{) 3.00} \\
 \underline{-20} \\
 100 \\
 \underline{-100} \\
 0
 \end{array}$$

What about repeating decimals?

Goal: eliminate the repeating decimal.

$$\begin{array}{l}
 X = 0.\overline{77777} \\
 10X = 7.\overline{7} \\
 -X = .\overline{7} \\
 \hline
 9X = 7 \\
 X = \frac{7}{9} \\
 -X = \frac{7}{9}
 \end{array}
 \quad
 \begin{array}{l}
 X = 0.\overline{8} \\
 10X = 8.\overline{8} \\
 -X = .\overline{8} \\
 \hline
 9X = 8 \\
 X = \frac{8}{9} \\
 -X = \frac{8}{9}
 \end{array}$$

More Examples

$0.\bar{1}$

$\frac{1}{9}$

$100x = 72.\bar{72}$
 $- x = 0.\bar{72}$

 $99x = 72$
 $x = \frac{72}{99} = \frac{8}{11}$

How about a challenge?!

$0.\overline{285714}$

$\frac{286}{1001}$

$\left(\frac{2}{7}\right)$