

Converting Between Fractions and Decimals

Key #12

Using Place Values to Write Terminating Decimals as Equivalent Fractions

- a. What is the value of the number 2.25? How can this number be written as a fraction in simplest form or mixed number?

$$2.25 = 2\frac{25}{100} = \boxed{2\frac{1}{4}}$$

- b. What is the value of the number 2.025? How can this number be written as a mixed number in simplest form?

$$2.025 = 2\frac{25}{1000} = \boxed{2\frac{1}{40}}$$

Practice

- a. 0.218

$$.218 = \frac{218}{1000} = \boxed{\frac{109}{500}}$$

- b. 0.0005

$$.0005 = \frac{5}{10,000} = \boxed{\frac{1}{2000}}$$

Converting Fractions to Decimals - Fractions with Denominators Having Factors of only 2 and/or 5

- a. Write the number $\frac{3}{100}$ as a decimal.

$$\frac{3}{100} = \underline{\underline{.03}}$$

- b. Write the number $\frac{3}{20}$ as a decimal.

$$\frac{3 \times 5}{20 \times 5} = \frac{15}{100} = \underline{\underline{.15}}$$

- c. Write the number $\frac{8}{40}$ as a decimal.

$$\frac{8}{40} = \frac{8 \times 25}{40 \times 25} = \frac{200}{1000} = .2$$

2.2.2.5

another method

$$\frac{8}{40} = \frac{1}{5} = \frac{2}{10} = .2$$

or divide 40) 8.0

More practice converting fractions to decimals

a. $3/16$ $\frac{3 \times 5 \times 5 \times 5 \times 5}{16 \times 5 \times 5 \times 5 \times 5} =$ OR DIVIDE \rightarrow $\boxed{.1875}$

Handwritten work for $3/16$:
 $\frac{3 \times 5 \times 5 \times 5 \times 5}{16 \times 5 \times 5 \times 5 \times 5} = \frac{3}{16}$
 $16 \times 5 \times 5 \times 5 \times 5 = 1250$
 $3 \div 16 = 0.1875$
 Long division: $16 \overline{) 3.00000}$
 $16 \times 0.1 = 1.6$
 $3.0 - 1.6 = 1.4$
 $16 \times 0.08 = 1.28$
 $1.40 - 1.28 = 0.12$
 $16 \times 0.007 = 0.112$
 $0.120 - 0.112 = 0.008$
 $16 \times 0.0005 = 0.008$
 $0.008 - 0.008 = 0$
 Final result: $.1875$

b. $7/5$ $1\frac{2}{5} = 1\frac{4}{10} = 1.4$

c. $35/50$ $\frac{35}{50} = \frac{70}{100} = \boxed{.7}$

Converting Fractions to Decimals using Long Division

5/9 $\textcircled{.5}$ $9 \overline{) 5.000}$ $\underline{-45}$ 50	7/9 $\textcircled{.7}$ $9 \overline{) 7.}$	5/99 $\overline{.05}$
3/11 $\overline{.27}$	8/11 $\overline{.72}$	1/6 $\overline{.16}$
1/7 $\overline{.142857}$	2/7 $\overline{.285714}$	2/13 13 + $\overline{.153846}$ $13 \overline{) 2.00000000}$ $\underline{-13}$ 70 $\underline{-65}$ 50 $\underline{-39}$ 110 $\underline{-104}$ 60 $\underline{-52}$ 8