Rational Numbers in Decimal Form

Goal: Write fractions as decimals and decimals as fractions.

Vocabulary

Rational number:

Terminating decimal:

Repeating decimal:

EXAMPLE 1 Writing Fractions as Decimals

To write a fraction as a decimal, divide the numerator by the denominator.

a. $\dfrac{8}{11} = 11\overline{)8.0000...}$

$$80$$
$$77$$
$$\overline{30}$$
$$22$$

b. $\dfrac{9}{25} = 25\overline{)9.00}$

$$150$$

$$0$$

Answer: The quotient 0.7272... is a [   ] decimal. To indicate this, place a bar over the repeating digits: $\dfrac{8}{11} = $ [   ].

Answer: The remainder is zero. So, $\dfrac{9}{25} = $ [   ] is a [   ] decimal.

EXAMPLE 2 **Writing Mixed Numbers as Decimals**

Bowling The table lists the weights of 5 bowling balls. Write the weights as decimals.

Weight (pounds)	$12\frac{3}{16}$	$12\frac{1}{5}$	$12\frac{2}{11}$	$12\frac{3}{25}$	$12\frac{1}{8}$

Solution

$12\frac{3}{16} = 12 + \boxed{} = 12 + \boxed{} = \boxed{}$

$12\frac{1}{5} = 12 + \boxed{} = 12 + \boxed{} = \boxed{}$

$12\frac{2}{11} = 12 + \boxed{} = 12 + \boxed{} = \boxed{}$

$12\frac{3}{25} = 12 + \boxed{} = 12 + \boxed{} = \boxed{}$

$12\frac{1}{8} = 12 + \boxed{} = 12 + \boxed{} = \boxed{}$

Answer In decimal form, the weights are $\boxed{}$ pounds, $\boxed{}$ pounds, $\boxed{}$ pounds, $\boxed{}$ pounds, and $\boxed{}$ pounds.

Guided Practice Write the fraction or mixed number as a decimal.

1. $\frac{9}{20}$	**2.** $\frac{1}{3}$	**3.** $\frac{2}{5}$
4. $2\frac{9}{11}$	**5.** $5\frac{7}{8}$	**6.** $6\frac{4}{5}$

EXAMPLE 3 Writing Terminating Decimals as Fractions

Write the decimal as a fraction or mixed number in simplest form.

a. 0.8

b. −3.225

Solution

a. $0.8 = \dfrac{8}{\boxed{}}$ ← 8 is in the $\boxed{}$ place.

$= \boxed{}$

b. $-3.225 = -3\dfrac{225}{\boxed{}}$ ← 5 is in the $\boxed{}$ place.

$= \boxed{}$

$= \boxed{}$

Guided Practice Write the decimal as a fraction or mixed number in simplest from.

7. 0.9	8. 0.76	9. −1.15	10. −5.25

Homework