

Lesson 5-6

Example 1 Find Multiplicative Inverses

Find the multiplicative inverse of $\frac{3}{8}$.

$$\frac{3}{8} \cdot \frac{8}{3} = 1 \quad \text{Multiply } \frac{3}{8} \text{ by } \frac{8}{3} \text{ to get the product 1.}$$

The multiplicative inverse of $\frac{3}{8}$ is $\frac{8}{3}$, or $2\frac{2}{3}$.

Example 2 Find Multiplicative Inverses

Find the multiplicative inverse of $4\frac{1}{5}$.

$$4\frac{1}{5} = \frac{21}{5} \quad \text{Rename the mixed number as an improper fraction.}$$

$$\frac{21}{5} \cdot \frac{5}{21} = 1 \quad \text{Multiply } \frac{21}{5} \text{ by } \frac{5}{21} \text{ to get the product 1.}$$

The multiplicative inverse of $4\frac{1}{5}$ is $\frac{5}{21}$.

Example 3 Solve a Division Equation

Solve $\frac{d}{6} = 4$. Check your solution.

$$\frac{d}{6} = 4 \quad \text{Write the equation.}$$

$$\frac{d}{6} \cdot 6 = 4 \cdot 6 \quad \text{Multiply each side of the equation by 6.}$$

$$d = 24 \quad \text{Simplify.}$$

The solution is 24.

Example 4 Solve a Division Equation

Solve $\frac{x}{8} = 6$. Check your solution.

$$\frac{x}{8} = 6 \quad \text{Write the equation.}$$

$$8 \cdot \frac{x}{8} = 6 \cdot 8 \quad \text{Multiply each side of the equation by 8.}$$

$$x = 48 \quad \text{Simplify.}$$

Check $\frac{x}{8} = 6$ Write the original equation.

$$\frac{48}{8} = 6 \quad \text{Replace x with 48.}$$

$$6 = 6 \quad \text{Is this sentence true?}$$

Example 5 Solve a Multiplication Equation

Solve $\frac{5}{8}x = -10$. Check your solution.

$$\frac{5}{8}x = -10 \quad \text{Write the equation.}$$

$$\left(\frac{8}{5}\right)\frac{5}{8}x = \left(\frac{8}{5}\right)-10 \quad \text{Multiply each side by the reciprocal of } \frac{5}{8}, \frac{8}{5}.$$

$$x = -16 \quad \text{Simplify.}$$

Check $\frac{5}{8}x = -10$ Write the original equation.

$$\frac{5}{8}(-16) = -10 \quad \text{Replace x with -10.}$$

$$-10 = -10 \quad \text{Is this sentence true?}$$

Example 6 Standardized Test Practice

GRIDDABLE Karli needs $\frac{3}{4}$ cup of sugar to make a batch of cookies for a bake sale. How many batches of cookies can she make with 9 cups of sugar?

Read the Test Item

Each batch of cookies needs $\frac{3}{4}$ cup of sugar. Given the number of batches of cookies, you would multiply by $\frac{3}{4}$ to find the number of cups of sugar needed.

Solve the Test Item

Write and solve a multiplication equation.

$$\begin{array}{ll} \frac{3}{4}b = 9 & \text{Write the equation.} \\ \left(\frac{4}{3}\right)\frac{3}{4}b = \left(\frac{4}{3}\right)9 & \text{Multiply each side by } \frac{4}{3}. \\ b = 12 & \text{Simplify.} \end{array}$$