

**EXAMPLE 2** Solve an equation using addition**USE HORIZONTAL FORMAT**

In Example 2, both horizontal and vertical formats are used. In the rest of the book, equations will be solved using the horizontal format.

Solve  $x - 12 = 3$ .**Horizontal format**

$$x - 12 = 3$$

$$x - 12 + 12 = 3 + 12$$

$$x = 15$$

Write original equation.

Add 12 to each side.

Simplify.

**Vertical format**

$$x - 12 = 3$$

$$\begin{array}{r} + 12 \\ + 12 \\ \hline \end{array}$$

$$x = 15$$

**MULTIPLICATION AND DIVISION EQUATIONS** Multiplication and division are inverse operations. So, the multiplication property of equality can be used to solve equations involving division, and the division property of equality can be used to solve equations involving multiplication.

**KEY CONCEPT***For Your Notebook***Multiplication Property of Equality**

**Words** Multiplying each side of an equation by the same nonzero number produces an equivalent equation.

**Algebra** If  $\frac{x}{a} = b$  and  $a \neq 0$ , then  $a \cdot \frac{x}{a} = a \cdot b$ , or  $x = ab$ .

**Division Property of Equality**

**Words** Dividing each side of an equation by the same nonzero number produces an equivalent equation.

**Algebra** If  $ax = b$  and  $a \neq 0$ , then  $\frac{ax}{a} = \frac{b}{a}$ , or  $x = \frac{b}{a}$ .

**EXAMPLE 3** Solve an equation using divisionSolve  $-6x = 48$ .

$$-6x = 48 \quad \text{Write original equation.}$$

$$\frac{-6x}{-6} = \frac{48}{-6} \quad \text{Divide each side by } -6.$$

$$x = -8 \quad \text{Simplify.}$$

**GUIDED PRACTICE** for Examples 1, 2, and 3

Solve the equation. Check your solution.

1.  $y + 7 = 10$

2.  $x - 5 = 3$

3.  $q - 11 = -5$

4.  $6 = t - 2$

5.  $4x = 48$

6.  $-65 = -5y$

7.  $6w = -54$

8.  $24 = -8n$