

**3-3****Study Guide and Intervention****Solving Multiplication Equations**

If each side of an equation is divided by the same non-zero number, the resulting equation is equivalent to the given one. You can use this property to solve equations involving multiplication and division.

**Example 1** Solve  $45 = 5x$ . Check your solution.

$$45 = 5x \quad \text{Write the equation.}$$

$$\frac{45}{5} = \frac{5x}{5} \quad \text{Divide each side of the equation by 5.}$$

$$9 = x \quad 45 \div 5 = 9$$

**Check**  $45 = 5x$  Write the original equation.

$$45 \stackrel{?}{=} 5(9) \quad \text{Replace } x \text{ with } 9. \text{ Is this sentence true?}$$

$$45 = 45 \quad \checkmark$$

The solution is 9.

**Example 2** Solve  $-21 = -3y$ . Check your solution.

$$-21 = -3y \quad \text{Write the equation.}$$

$$\frac{-21}{-3} = \frac{-3y}{-3} \quad \text{Divide each side by } -3.$$

$$7 = y \quad -21 \div (-3) = 7$$

**Check**  $-21 = -3y$  Write the original equation.

$$-21 \stackrel{?}{=} -3(7) \quad \text{Replace } y \text{ with } 7. \text{ Is this sentence true?}$$

$$-21 = -21 \quad \checkmark$$

The solution is 7.

**Exercises**

Solve each equation. Then check your solution.

1.  $8q = 56$  **7**

2.  $4p = 32$  **8**

3.  $42 = 6m$  **7**

4.  $104 = 13h$  **8**

5.  $-6n = 30$  **-5**

6.  $-18x = 36$  **-2**

7.  $48 = -8y$  **-6**

8.  $72 = -3b$  **-24**

9.  $-9a = -45$   
**5**

10.  $-12m = -120$   
**10**

11.  $-66 = -11t$   
**6**

12.  $-144 = -9r$   
**16**

13.  $3a = 4.5$  **1.5**

14.  $2h = 3.8$  **1.9**

15.  $4.9 = 0.7k$  **7**

16.  $9.75 = 2.5z$  **3.9**