

## Lesson 5-5

## Example 1

Simplify.

a.  $9r + 6r$

b.  $10m + 4m - 3n + 7$

c.  $8r + 7s - 3r$

## Solution

$$\begin{aligned} \text{a. } 9r + 6r &= (9 + 6)r \\ &= 15r \end{aligned}$$

Use the Distributive Property.

$$\begin{aligned} \text{b. } 10m + 4m - 3n + 7 &= (10 + 4)m - 3n + 7 \\ &= 14m - 3n + 7 \end{aligned}$$

Use the Distributive Property.

$$\begin{aligned} \text{c. } 8r + 7s - 3r &= 8r - 3r + 7s \\ &= (8 - 3)r + 7s \\ &= 5r + 7s \end{aligned}$$

Rewrite the expression using the Commutative Property.  
Use the Distributive Property.

## Example 2

Solve  $11x + 8 = 5x - 4$ . Check the solution.

## Solution

$$\begin{aligned} 11x + 8 &= 5x - 4 \\ 11x - 5x + 8 &= 5x - 5x - 4 && \text{Subtract } 5x \text{ from each side.} \\ 6x + 8 &= -4 && \text{Simplify.} \\ 6x + 8 - 8 &= -4 - 8 && \text{Subtract 8 from each side.} \\ 6x &= -12 && \text{Simplify.} \\ \frac{6x}{6} &= \frac{-12}{6} && \text{Divide each side by 6.} \\ x &= -2 \end{aligned}$$

## Check

$$\begin{aligned} 11x + 8 &= 5x - 4 \\ 11(-2) + 8 &= 5(-2) - 4 \\ -22 + 8 &= -10 - 4 \\ -14 &= -14 \quad \checkmark \end{aligned}$$

**Example 3**

Write and solve an equation for the following sentence.

Seven less than a number is nine more than three times the number.

**Solution**

$$n - 7 = 3n + 9$$

$$n - n - 7 = 3n - n + 9$$

$$-7 = 2n + 9$$

$$-7 - 9 = 2n + 9 - 9$$

$$-16 = 2n$$

$$\frac{-16}{2} = \frac{2n}{2}$$

$$-8 = n$$

The number is -8.