

## 4-9 More Equations

**Objective:** To solve equations by simplifying expressions involving combining like terms and the distributive property.

**Example 1** Solve  $5(6n - 4) = 70$ . Check the solution.

**Solution**

$$5(6n - 4) = 70$$

$$30n - 20 = 70 \quad \leftarrow \text{Use the distributive property.}$$

$$30n - 20 + 20 = 70 + 20 \quad \leftarrow \text{Add 20 to both sides.}$$

$$30n = 90$$

$$\frac{30n}{30} = \frac{90}{30} \quad \leftarrow \text{Divide both sides by 30.}$$

$$n = 3$$

The solution is 3.

*Check:*

$$5(6n - 4) = 70$$

$$5(6[3] - 4) \stackrel{?}{=} 70$$

$$5(18 - 4) \stackrel{?}{=} 70$$

$$5(14) \stackrel{?}{=} 70$$

$$70 = 70 \checkmark$$

**Solve. Check each solution.**

- |                       |                        |                       |
|-----------------------|------------------------|-----------------------|
| 1. $5(x - 2) = 20$    | 2. $-4(z + 7) = 24$    | 3. $2(3m - 3) = 66$   |
| 4. $-20 = -5(a + 7)$  | 5. $-2(x + 3) = -12$   | 6. $210(x - 3) = 840$ |
| 7. $-90 = 3(-2z - 8)$ | 8. $3(x + 1) = 15$     | 9. $80 = 10(3t + 2)$  |
| 10. $-(7 - h) = 13$   | 11. $16 = 4(x - 5)$    | 12. $-7(y - 1) = 21$  |
| 13. $6(4 - z) = 18$   | 14. $180(n - 2) = 900$ | 15. $4(2t + 11) = 12$ |

**Example 2** Solve  $36 = 8n + n$ . Check the solution.

**Solution**

$$36 = 8n + n$$

$$36 = 8n + 1n$$

$$36 = 9n \quad \leftarrow \text{Combine like terms.}$$

$$\frac{36}{9} = \frac{9n}{9}$$

$$4 = n$$

The solution is 4.

**Check:**

$$36 = 8n + n$$

$$36 \stackrel{?}{=} 8(4) + 4$$

$$36 \stackrel{?}{=} 32 + 4$$

$$36 = 36 \checkmark$$