

**3-5 Study Guide and Intervention** *(continued)***Solving Equations with the Variable on Each Side**

**Grouping Symbols** When solving equations that contain grouping symbols, first use the Distributive Property to eliminate grouping symbols. Then solve.

**Example**Solve  $4(2a - 1) = -10(a - 5)$ .

$$4(2a - 1) = -10(a - 5)$$

Original equation

$$8a - 4 = -10a + 50$$

Distributive Property

$$8a - 4 + 10a = -10a + 50 + 10a$$

Add  $10a$  to each side.

$$18a - 4 = 50$$

Simplify.

$$18a - 4 + 4 = 50 + 4$$

Add 4 to each side.

$$18a = 54$$

Simplify.

$$\frac{18a}{18} = \frac{54}{18}$$

Divide each side by 18.

$$a = 3$$

Simplify.

The solution is 3.

**Exercises**

Solve each equation. Then check your solution.

1.  $-3(x + 5) = 3(x - 1)$

2.  $2(7 + 3t) = -t$

3.  $3(a + 1) - 5 = 3a - 2$

4.  $75 - 9g = 5(-4 + 2g)$

5.  $5(f + 2) = 2(3 - f)$

6.  $4(p + 3) = 36$

7.  $18 = 3(2c + 2)$

8.  $3(d - 8) = 3d$

9.  $5(p + 3) + 9 = 3(p - 2) + 6$

10.  $4(b - 2) = 2(5 - b)$

11.  $1.2(x - 2) = 2 - x$

12.  $\frac{3 + y}{4} = \frac{-y}{8}$

13.  $\frac{a - 8}{12} = \frac{2a + 5}{3}$

14.  $2(4 + 2k) + 10 = k$

15.  $2(w - 1) + 4 = 4(w + 1)$

16.  $6(n - 1) = 2(2n + 4)$

17.  $2[2 + 3(y - 1)] = 22$

18.  $-4(r + 2) = 4(2 - 4r)$

19.  $-3(x - 8) = 24$

20.  $4(4 - 4k) = -10 - 16k$

21.  $6(2 - 2y) = 5(2y - 2)$