

7-4 Study Guide and Intervention *(continued)*

EXAMPLE EBS

Elimination by Substitution

$$\begin{cases} x = 2y + 7 \\ x = y + 4 \end{cases}$$

$$\begin{array}{r} y + 4 = 2y + 7 \\ -y \quad -y \end{array}$$

$$\begin{array}{r} 4 = y + 7 \\ -7 \quad -7 \end{array}$$

$$-3 = y$$

$$x = (-3) + 4$$

$$x = 1$$

$$\text{Solution} = (1, -3)$$

EXAMPLE EBA

Elimination by Addition

$$\begin{array}{r} 6x + 2y = 20 \\ -2x + 4y = -16 \end{array} \xrightarrow{(3)} \begin{array}{r} 6x + 2y = 20 \\ -6x + 12y = -48 \end{array}$$

$$\begin{array}{r} 14y = -28 \\ 14 \quad 14 \end{array}$$

$$y = -2$$

$$6x + 2y = 20$$

$$6x + 2(-2) = 20$$

$$\begin{array}{r} 6x - 4 = 20 \\ +4 \quad +4 \end{array}$$

$$\begin{array}{r} 6x = 24 \\ 6 \quad 6 \end{array}$$

$$x = 4$$

$$\text{Solution} = (4, -2)$$

Exercises

Determine the best method to solve each system of equations. Then solve the system.

1. $x + 2y = 3$
 $x + y = 1$

2. $m + 6n = -8$
 $m = 2n + 8$

3. $a - b = 6$
 $a = 2b + 7$

4. $4x + y = 15$
 $-x - 3y = -12$

5. $3c - d = 14$
 $c - d = 2$

6. $x + 2y = -9$
 $y = 4x$

7. $4x = 2y - 10$
 $x + 2y = 5$

8. $x = -2y$
 $4x + 4y = -10$

9. $2s - 3t = 42$
 $3s + 2t = 24$

10. $4a - 4b = -10$
 $2a + 4b = -2$

11. $4x + 10y = -6$
 $-2x - 10y = 2$

12. $2x = y - 3$
 $-x + y = 0$