NAME _____ DATE _____

Module 10 Solving Systems of Linear Equations and Inequalities
Lesson 3 Solving Systems of Linear Equations by Substitution

independent practice

Solve each system of linear equations using the substitution method.

1. $\begin{cases} 4x + 3y = 4 \\ 2x - 7 = y \end{cases}$

2. $\begin{cases} 4x - 2y = 7 \\ x = 3 - 2y \end{cases}$

3. $\begin{cases} h = -0.75j \\ 2h - 4j = 16.5 \end{cases}$

4. $\begin{cases} 5x = 4y \\ 3x + y = 17 \end{cases}$

5. $\begin{cases} y = x \\ x + y = 0 \end{cases}$

6. $\begin{cases} y = 10 - x \\ y = x + 2 \end{cases}$

7. $\begin{cases} 5f = 9d - 12 \\ f = \frac{9}{5}d + 12 \end{cases}$

8. $\begin{cases} b = 3\left(1 - \frac{2a}{3}\right) \\ 4a + 2b = 12 \end{cases}$

9. $\begin{cases} p - \frac{1}{2}q = 2 \\ q = 2p - 4 \end{cases}$

Solve.

10. The sum of two positive, odd integers is 38. One of the numbers is eight more than the other number. What are the two numbers?

11. One number is five less than seven times another. The sum of the two numbers is –29. Find the numbers.

12. Jim has 60 cents in his pocket in dimes and nickels. If he has three more dimes than nickels, how many of each does Jim have in his pocket?

13. Susan spent $7.15 for popcorn and soda at the movies. If the popcorn was four times the price of the soda, how much did each cost?

14. The high school marching band has 136 members. If the girls outnumber the boys by 18, how many boys are in the band?

15. Josh scored 25 points in the finals of the basketball tournament. If he had twice as many 2-point baskets as 1-point free throws, how many baskets did he make?

Journal

1. When solving a system of two linear equations, what situation makes the method of substitution easier to use?
2. Compare and contrast the three methods for solving systems of equations.
3. What is the graph of a system of linear equations? How does finding the solution on a graph differ from finding the solution by other methods?
4. Why is it important to know more than one method for solving systems of equations?
5. Which method for solving systems of equations would be best for solving the following system of linear equations? Justify your choice.

$$\begin{cases} \frac{x}{5} + \frac{y}{6} = 2 \\ 2y = 3x - 1 \end{cases}$$

Cumulative Review

Evaluate each expression below, using the functions $f(x) = x^2 - 5x + 14$, $g(x) = 3x + 2$, and $h(x) = -x^3 + 2x - 1$.

1. $f(0)$ _____
2. $h(3)$ _____
3. $g(1)$ _____
4. $f(g(1))$ _____
5. $h(3) + 2f(0)$ _____
6. $h(2) - 5f(-2)$ _____
7. $f(-2)$ _____
8. $g(a^2)$ _____
9. $g(f(a))$ _____
10. $g(f(2))$ _____