DIGITAL

Module 10 Solving Systems of Linear Equations and Inequalities

Lesson 3 Solving Systems of Linear Equations by Substitution

Solve each system of linear equations using the substitution method.

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

(–3, –2)

2. $\begin{cases} b = a + 3 \\ 2a + b = 3 \end{cases}$

(0, 3)

3. $\begin{cases} 5g - 3h = 4 \\ h = 4g - 6 \end{cases}$

(2, 2)

4. $\begin{cases} t = 3s \\ 2s + t = 5 \end{cases}$

(1, 3)

5. $\begin{cases} w = 2p + 3 \\ p + w = 9 \end{cases}$

(2, 7)

6. $\begin{cases} r - t = 5 \\ 3r = 15 + 3t \end{cases}$

An infinite number of solutions

7. $\begin{cases} r - t = 5 \\ 3r = 7 + 3t \end{cases}$

No solution

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

No solution

9. $\begin{cases} 2y - 4x = 6 \\ y = 2x + 3 \end{cases}$

An infinite number of solutions

Solve.

10. The difference between two numbers is 22. The larger number is seven more than twice the smaller. Find the numbers.

The numbers are 37 and 15.

11. The sum of two numbers is 53. The first number is 137 more than the second number. Find the numbers.

The numbers are 95 and –42.

12. A giant pizza and a pitcher of soda cost $11.96. The pizza costs three times as much as the soda. What is the price of the pizza?

The pizza costs $8.97.

13. CDs cost $7 more than cassette tapes. Tony paid $58.95 for 2 CDs and 3 cassettes. How much would five CDs cost?

Five CDs would cost $79.95.

14. The length of a rectangle is three feet less than twice its width. Find the dimensions of the rectangle if the perimeter is 42 feet.

The rectangle is 8 feet wide and 13 feet long.

15. The perimeter of a rectangle is 38 meters. If the width is increased by two meters and the length is decreased by three meters, the rectangle becomes a square. Find the perimeter of the square.

The perimeter of the square is 36 meters.