
Solve each of the following systems of equations by using the substitution method.

1.
$$\begin{cases} y = 3 \\ 2x + y = 9 \end{cases}$$

2.
$$\begin{cases} x = -2 \\ y - 4x = -13 \end{cases}$$

3.
$$\begin{cases} y = 6x \\ x + y = 28 \end{cases}$$

4.
$$\begin{cases} 2x + 10y = 20 \\ x = 10 - 5y \end{cases}$$

5.
$$\begin{cases} 3x - y = 6 \\ y = 3x + 4 \end{cases}$$

6.
$$\begin{cases} 2x + 3y = 19 \\ y = 2x + 1 \end{cases}$$

7.
$$\begin{cases} 3y + 2x = 2 \\ x - 2y = 8 \end{cases}$$

8.
$$\begin{cases} y - 2x = 0 \\ 2x + 7y = 16 \end{cases}$$

9.
$$\begin{cases} x + y = 4 \\ 2x + 2y = 8 \end{cases}$$

10.
$$\begin{cases} 2x + y = 5 \\ 4x + 2y = 8 \end{cases}$$

11.
$$\begin{cases} \frac{2x}{3} - \frac{y}{6} = 8 \\ y = 2x - 30 \end{cases}$$

12.
$$\begin{cases} \frac{x}{6} + \frac{4y}{3} = -5 \\ \frac{3x}{2} - \frac{y}{3} = -8 \end{cases}$$

For each of the following problems, write a system of equations and solve.

13. The perimeter of a rectangle is 56 cm. The length of the rectangle is 2 cm more than the width. Determine the dimensions of the rectangle.

14. The perimeter of a rectangle is 74 cm. The length of the rectangle is 5 cm less than twice the width. Determine the dimensions of the rectangle.

15. The sum of two numbers is 18 and their difference is 12. Determine each of the numbers.

16. The sum of two numbers is 57 and their difference is 5. Determine each of the numbers.

Write the letter of the best answer choice in the blank provided.

17. If the system $\begin{cases} x + 2y = 6 \\ 5x + y = 10 \end{cases}$ is to be solved by substitution, which of the following expressions can be replaced for x in the second equation?

A. $6 - 2y$

B. $10 - 5x$

C. $\frac{6 - x}{2}$

D. $\frac{10 - y}{5}$

18. If the system $\begin{cases} 2x + y = -6 \\ 5x + 4y = 2 \end{cases}$ is to be solved by substitution, which of the following expressions can be replaced for y in the second equation?

A. $\frac{-6 - y}{2}$

B. $\frac{2 - 5x}{4}$

C. $-6 - 2x$

D. $\frac{2 - 4y}{5}$

19. If the system $\begin{cases} x + 3y = -5 \\ x - 2y = 6 \end{cases}$ is to be solved by substitution, which of the following expressions can be replaced for x in the first equation?

A. $-5 - 3y$

B. $2y + 6$

C. $\frac{-5 - x}{3}$

D. $\frac{6 - x}{-2}$

20. If the system $\begin{cases} 2x + 4y = 7 \\ 5x + 2y = -6 \end{cases}$ is to be solved by substitution, which of the following expressions can be replaced for y in the first equation?

A. $\frac{7 - 4y}{2}$

B. $\frac{7 - 2x}{4}$

C. $\frac{-6 - 5x}{2}$

D. $\frac{-6 - 2y}{5}$

21. If the system $\begin{cases} \frac{x}{2} + y = 6 \\ \frac{x}{3} - \frac{y}{4} = 7 \end{cases}$ is to be solved by substitution, which of the following expressions can be replaced for x in the second equation?

A. $12 - 2y$

B. $12 - y$

C. $6 - y$

D. $\frac{7 + 3y}{4}$

22. If the system $\begin{cases} 2x + y = 6 \\ 3x - 2y = 2 \end{cases}$ is solved by substitution, then which of the following represents the value of $x + y$?

A. -4

B. -2

C. 3

D. 4

23. If the system $\begin{cases} x + 3y = 9 \\ 2x + 3y = 15 \end{cases}$ is solved by substitution, then which of the following represents the value of y ?

A. $\frac{1}{3}$

B. 1

C. 5

D. 6

24. Which of the following represents the solution of the system $\begin{cases} 3x - 5y = 27 \\ x + 4y = -8 \end{cases}$?

A. $(14, 3)$

B. $(4, 3)$

C. $(3, 14)$

D. $(4, -3)$

25. If $x + y = 3$ and $x - y = 2$, then which of the following represents the value of $4x$?

A. 10

B. 12

C. 14

D. 16

26. If $4x - 3y = 12$ and $x = \frac{7y}{4}$, then which of the following represents the value of y ?

A. 2

B. 3

C. 4

D. 5