

Solving Systems of Equations - Algebraically (Unit 6)

Name: _____

Date: _____

1. Solve the following system of equations for x using elimination.

$$\begin{aligned} 3x - 2y &= 8 \\ 2x + 2y &= 7 \end{aligned}$$

- A. 15 B. -3 C. 1 D. 3

2. Solve the following system of equations for x using elimination.

$$\begin{aligned} 5x - 3y &= -3 \\ 2x - 3y &= 6 \end{aligned}$$

- A. -9 B. -3 C. 1 D. 3

3. Solve the following system of equations for x :

$$\begin{aligned} 9x + 7y &= 17 \\ 6x - 5y &= -8 \end{aligned}$$

- A. $-\frac{29}{3}$ B. -3 C. $\frac{4}{87}$ D. $\frac{1}{3}$

4. Solve the following system of equations for y :

$$\begin{aligned} -7x + 5y &= 6 \\ 5x + 2y &= 5 \end{aligned}$$

- A. $-\frac{13}{11}$ B. $-\frac{1}{3}$ C. $\frac{1}{3}$ D. $\frac{5}{3}$

5. Given this system, use elimination to solve for y :

$$\begin{aligned} 3x + 2y &= 6 \\ -3x + 5y &= 8 \end{aligned}$$

- A. 2 B. 4 C. 6 D. 8

6. Given this system, use elimination to solve for y :

$$\begin{aligned} 3x - 6y &= 20 \\ 3x + 2y &= 4 \end{aligned}$$

- A. 6 B. -4 C. -2 D. 0

7. Solve this system of equations using elimination:

$$\begin{aligned} 3x - 2y &= -17 \\ 5x + 4y &= 1 \end{aligned}$$

- A. (1, -1) B. (3, -13) C. (-5, 1) D. (-3, 4)

8. Solve this system of equations using elimination:

$$\begin{aligned} 3x - y &= -7 \\ x + 2y &= -14 \end{aligned}$$

- A. (0, 7) B. (2, -8)
C. (-4, -5) D. (-6, -4)

9. Given the system below, solve by elimination.

$$\begin{aligned} 4x + 3y &= 10 \\ 5x + 4y &= 13 \end{aligned}$$

- A. (5, -3) B. (1, 2) C. (-2, 6) D. (-5, 7)

10. Given the system below, solve by elimination.

$$\begin{aligned} 2x - 3y &= 5 \\ 3x + 4y &= 16 \end{aligned}$$

- A. (4, 1) B. (-4, 7) C. (7, 3) D. (0, 4)

11. Solve: $\begin{aligned} 2x - 3y &= 6 \\ 2x - 6y &= 9 \end{aligned}$

- A. $(-2, -\frac{10}{3})$ B. $(\frac{3}{2}, -1)$
C. $(4, \frac{2}{3})$ D. (6, 2)

12. Solve: $\begin{aligned} 3x - 4y &= 6 \\ 3x - 2y &= 2 \end{aligned}$

- A. $(-2, -\frac{4}{3})$ B. $(-\frac{4}{3}, -3)$
C. $(-\frac{2}{3}, -2)$ D. $(1, \frac{1}{2})$

13. If $(3, 5)$ is a solution to the system

$$\begin{aligned}ax + by &= 21 \\ax - by &= -9\end{aligned}$$

then the values of a and b are:

- A. 2 and -3 B. -2 and 3
C. -2 and -3 D. 2 and 3
14. If $(-3, 5)$ is a solution to the system
- $$\begin{aligned}px + qy &= -5 \\px - qy &= -25\end{aligned}$$
- then the values of p and q are:
- A. 5 and 2 B. 2 and -5
C. -5 and 2 D. -2 and -5
15. If $(2, -5)$ and $(-5, -2)$ both satisfy $Ax + By = -29$, then what is the value of A ?
- A. -7 B. -3 C. 3 D. 7
16. The set of equations $x + 2y = 4$ and $2x + 4y = 10$ has _____.
- A. an infinite set of solutions
B. two solutions only
C. one solution only
D. no solution

17. The set of equations $3x - 4y = 8$ and $4y - 4x = 6$ has _____.

- A. an infinite set of solutions
B. two solutions only
C. one solution only
D. no solution
18. Solve: $\begin{aligned}5a + b - c &= 9 \\3a + b + 2c &= 17 \\a + 2b + 3c &= 20\end{aligned}$
- A. $(2, -3, 4)$ B. $(2, 3, 4)$
C. $(4, 3, 2)$ D. $(-2, -3, 4)$
19. A certain rectangle has a perimeter of at least 50. Given ℓ represents the length of the rectangle and w represents the width, select the inequality which represents this situation.
- A. $2\ell + 2w < 50$ B. $2\ell + 2w \leq 50$
C. $2\ell + 2w \geq 50$ D. $2\ell + 2w > 50$
20. A company manufactures two types of shoes, one expensive and one cheap. The company decides that to make a profit they must manufacture at least 150 pairs of shoes. The expensive shoes cost \$85 a pair and the cheap ones cost \$50. If e represents the number of expensive shoes produced and c represents the number of cheap shoes produced, then which inequality represents this situation?
- A. $e + c \leq 150$ B. $e + c \geq 150$
C. $e + c < 150$ D. $e + c > 150$