

Gateway Exam #1 Practice Problems
Solving Systems of Equations

1. What values of x and y satisfy the following system of equations?

$$\begin{aligned}x + y &= 5 \\x - y &= -1\end{aligned}$$

- (a) $x = -2, y = -3$
- (b) $x = -2, y = 3$
- (c) $x = 2, y = -3$
- (d) $x = 2, y = 3$
- (e) The given system of equations has no solutions.

2. What values of x and y satisfy the following system of equations?

$$\begin{aligned}x - 2y &= -27 \\-x + 3y &= 37\end{aligned}$$

- (a) $x = 10, y = -7$
- (b) $x = -7, y = 10$
- (c) $x = 7, y = -10$
- (d) $x = -10, y = 7$
- (e) The given system of equations has no solutions.

3. What values of x and y satisfy the following system of equations?

$$\begin{aligned}2x + y &= 6 \\3x - 2y &= 23\end{aligned}$$

- (a) $x = 5, y = -4$
- (b) $x = \frac{35}{2}, y = -29$
- (c) $x = -35, y = 70$
- (d) $x = \frac{29}{7}, y = -\frac{16}{7}$
- (e) The given system of equations has no solutions.

4. What values of x and y satisfy the following system of equations?

$$\begin{aligned}10x + y &= 10 \\20x - y &= -10\end{aligned}$$

- (a) $x = 0, y = 0$
- (b) $x = 10, y = 10$
- (c) $x = 0, y = 10$
- (d) $x = 10, y = 0$

(e) The given system of equations has no solutions.

5. What values of x and y satisfy the following system of equations?

$$\begin{aligned} 3x - 2y &= 7 \\ -6x + 4y &= 7 \end{aligned}$$

(a) $x = 3, y = 1$

(b) $x = 3, y = \frac{25}{4}$

(c) $x = 1, y = 3$

(d) $x = \frac{25}{4}, y = 3$

(e) The given system of equations has no solutions.

6. What values of x and y satisfy the following system of equations?

$$\begin{aligned} 4x + 10y &= -3 \\ -7x + y &= -4 \end{aligned}$$

(a) $x = \frac{1}{2}, y = -\frac{1}{2}$

(b) $x = \frac{1}{11}, y = -\frac{37}{11}$

(c) $x = \frac{1}{74}, y = -\frac{289}{74}$

(d) $x = 2, y = -\frac{11}{10}$

(e) The given system of equations has no solutions.

7. What values of x and y satisfy the following system of equations?

$$\begin{aligned} x + y &= 0 \\ 2x - y &= 0 \end{aligned}$$

(a) $x = 1, y = -1$

(b) $x = 0, y = 0$

(c) $x = -1, y = 1$

(d) $x = 1, y = 2$

(e) The given system of equations has no solutions.

8. What values of x and y satisfy the following system of equations?

$$\begin{aligned} 10x - 10y &= 5000 \\ -10x + 40y &= -14000 \end{aligned}$$

(a) $x = 800, y = -300$

(b) $x = 320, y = -180$

(c) $x = 200, y = -300$

(d) $x = -200, y = 300$

(e) The given system of equations has no solutions.

9. What values of x and y satisfy the following system of equations?

$$\begin{aligned}3x - 5y &= 10 \\ -9x + 15y &= 12\end{aligned}$$

- (a) $x = \frac{7}{3}, y = -\frac{3}{5}$
- (b) $x = 0, y = 0$
- (c) $x = -\frac{3}{5}, y = \frac{7}{3}$
- (d) $x = 2, y = -\frac{4}{5}$
- (e) The given system of equations has no solutions.

10. What values of x and y satisfy the following system of equations?

$$\begin{aligned}x - 2y &= 7 \\ 4x + 3y &= 6\end{aligned}$$

- (a) $x = -\frac{9}{5}, y = -\frac{22}{5}$
- (b) $x = 11, y = 2$
- (c) $x = -\frac{33}{5}, y = -\frac{34}{5}$
- (d) $x = 3, y = -2$
- (e) The given system of equations has no solutions.

Answers:

- | | | | | |
|------|------|------|------|-------|
| 1. d | 2. b | 3. a | 4. c | 5. e |
| 6. a | 7. b | 8. c | 9. e | 10. d |