



Algebra & Functions (Maths 201-016)

Substitution/Elimination

Solve the system by substitution.

1.
$$\begin{cases} x + y = 5 \\ 3x + 2y = 12 \end{cases}$$

2.
$$\begin{cases} x + 2y = -1 \\ 2x - 4y = 6 \end{cases}$$

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

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

5.
$$\begin{cases} 3x + 2y = 0 \\ -x + 3y = 0 \end{cases}$$

6.
$$\begin{cases} x + y = 5 \\ 3x + 3y = 12 \end{cases}$$

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

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

9.
$$\begin{cases} 3x + y = 5 \\ 9x + 3y = 1 \end{cases}$$

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

11.
$$\begin{cases} 2x + 6y = 4 \\ 3x + 9y = 6 \end{cases}$$

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

13.
$$\begin{cases} 8x - 2y = 6 \\ 4x - 3y = 1 \end{cases}$$

14.
$$\begin{cases} 5x + 6y = 1 \\ 2x + 3y = 1 \end{cases}$$

Solve the system by elimination.

15.
$$\begin{cases} x + 3y = 5 \\ 3x + 4y = 10 \end{cases}$$

16.
$$\begin{cases} 3x + y = 4 \\ x - 2y = 4 \end{cases}$$

17.
$$\begin{cases} x + y = 5 \\ 3x + 3y = 12 \end{cases}$$

18.
$$\begin{cases} -2x + 5y = 7 \\ 3x + y = -2 \end{cases}$$

19.
$$\begin{cases} x - 2y = 5 \\ 3x - 6y = 15 \end{cases}$$

20.
$$\begin{cases} 5x - y = 7 \\ 6x + 4y = 2 \end{cases}$$

21.
$$\begin{cases} 3x + 6y = 1 \\ 2x + 4y = 5 \end{cases}$$

22.
$$\begin{cases} 3x - 5y = 3 \\ 4x - 7y = 1 \end{cases}$$

23.
$$\begin{cases} 2x + 3y = 5 \\ 7x - 12y = -3 \end{cases}$$

24.
$$\begin{cases} -4x + 3y = 5 \\ 8x - 6y = -10 \end{cases}$$

25.
$$\begin{cases} 3x + 4y = -8 \\ -6x - 7y = 14 \end{cases}$$

26.
$$\begin{cases} 5x + 6y = 1 \\ 3x + 4y = 1 \end{cases}$$

27.
$$\begin{cases} -2x + 7y = 15 \\ 3x + 3y = -1 \end{cases}$$

Answers

1. $(2, 3)$
2. $(1, -1)$
3. $(2, 6)$
4. No solution.
5. $(0, 0)$
6. No solution.
7. $(1, 2)$
8. Infinite solutions.
9. No solution.
10. $(\frac{3}{2}, -\frac{1}{2})$
11. Infinite solutions.
12. $(2, -\frac{3}{2})$
13. $(1, 1)$
14. $(-1, 1)$
15. $(2, 1)$
16. $(\frac{12}{7}, -\frac{8}{7})$
17. No solution.
18. $(-1, 1)$
19. Infinite solutions.
20. $(\frac{15}{13}, -\frac{16}{13})$
21. No solution.
22. $(16, 9)$
23. $(\frac{17}{15}, \frac{41}{45})$
24. Infinite solutions.
25. $(0, -2)$
26. $(-1, 1)$
27. $(-\frac{52}{27}, \frac{43}{27})$