

Solving Linear Systems by Elimination (ALG.SYS.04)

Solve each linear system by elimination.

$$1. \begin{cases} 3x - 5y = 20 \\ 2x + 5y = 5 \end{cases} \quad (5, -1)$$

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

$$3. \begin{cases} -3x + 5y = -16 \\ 3x - 2y = 10 \end{cases} \quad (2, -2)$$

$$4. \begin{cases} 5x + 3y = -3 \\ -5x = 4y - 1 \end{cases} \quad (-3, 4)$$

$$5. \begin{cases} -5x + 4y = 7 \\ 2x - 2y = -4 \end{cases} \quad (1, 3)$$

$$6. \begin{cases} 6x + 2y = -10 \\ -3x + 3y = 33 \end{cases} \quad (-4, 7)$$

$$7. \begin{cases} 3x - 3y = -12 \\ 2x = 16 - 6y \end{cases} \quad (-1, 3)$$

$$8. \begin{cases} 2x + 20y = 58 \\ 5x - 3y = -14 \end{cases} \quad (-1, 3)$$

$$9. \begin{cases} -4x + 9y = 8 \\ -5x + 9y = 10 \end{cases} \quad (-2, 0)$$

$$10. \begin{cases} -5x = 20 + 5y \\ -10y = 6x + 28 \end{cases} \quad (-3, -1)$$

$$11. \begin{cases} 3x = 2y + 8 \\ 4y = 6x - 5 \end{cases} \quad \text{no solution}$$

$$12. \begin{cases} 5x + 3y + 7 = 0 \\ -6x = 18 + 6y \end{cases} \quad (1, -4)$$

$$13. \begin{cases} 2x + 13 = -7y \\ 9y - 9 = -9x \end{cases} \quad (4, -3)$$

$$14. \begin{cases} -19 = 9x + 20y \\ -4x = 14 + 10y \end{cases} \quad (9, -5)$$

$$15. \begin{cases} 3x = 7y - 23 \\ 2x - 5y + 16 = 0 \end{cases} \quad (-3, 2)$$

$$16. \begin{cases} 2 + 2y = 5x \\ 15x = 6y + 6 \end{cases} \quad \text{infinite solutions}$$

$$17. \begin{cases} 18x - 21y - 10 = 0 \\ 6x = 4 + 7y \end{cases} \quad \text{no solution}$$

$$18. \begin{cases} 10x - 7y = 2 \\ 4y = 9x - 11 \end{cases} \quad (3, 4)$$

$$19. \begin{cases} -3x + 5y = -22 \\ -2x + 8y = -24 \end{cases} \quad (4, -2)$$

$$20. \begin{cases} 70y = 7x - 28 \\ -5x + 20 = -50y \end{cases} \quad \text{infinite solutions}$$

$$21. \begin{cases} 8x = 12 - 4y \\ 4x + 2y - 6 = 0 \end{cases} \quad \text{infinite solutions}$$

$$22. \begin{cases} 8x = 6y + 12 \\ 4x - 8 = 3y \end{cases} \quad \text{no solution}$$

$$23. \begin{cases} \frac{3}{4}x + \frac{1}{2}y = 3 \\ -\frac{1}{2}x - \frac{3}{2}y = 5 \end{cases} \quad (8, -6)$$

$$24. \begin{cases} \frac{2}{3}x - \frac{1}{2}y = -5 \\ -\frac{1}{2}x + \frac{3}{2}y = 6 \end{cases} \quad (-6, 2)$$

$$25. \begin{cases} \frac{1}{3}x + \frac{2}{5}y = -1 \\ -\frac{2}{3}x + \frac{3}{5}y = -5 \end{cases} \quad (3, -5)$$

26. Determine the values of a and b such that the solution to the linear system is $Q(5, -3)$.

$$\begin{cases} ax - by = -2 \\ bx - ay = -14 \end{cases} \quad a = 2, b = -4$$

27. Determine value for a and b such that the solution to the linear system is $P(-4, 6)$.

$$\begin{cases} 2ax - 3by = -102 \\ bx + 5ay = -118 \end{cases} \quad a = -3, b = 7$$