

ALGEBRA 2

Systems of equations in three unknowns.

Solve the following systems of equations.

$$\begin{aligned}x + 2y - z &= 9 \\ 2x - z &= -2 \\ 1. \quad 3x + 5y + 2z &= 22\end{aligned}$$

$$\begin{aligned}x + y + z &= 6 \\ 2x - y + z &= 3 \\ 2. \quad 3x - z &= 0\end{aligned}$$

$$\begin{aligned}x + y + z &= 2 \\ -x + 3y + 2z &= 8 \\ 3. \quad 4x + y &= 4\end{aligned}$$

$$\begin{aligned}4x + y - 3z &= 11 \\ 2x - 3y + 2z &= 9 \\ 4. \quad x + y + z &= -3\end{aligned}$$

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

$$\begin{aligned}6y + 4z &= -12 \\ 3x + 3y &= 9 \\ 6. \quad 2x - 3z &= 10\end{aligned}$$

$$\begin{aligned}2x + 4y + z &= -4 \\ 2x - 4y + 6z &= 13 \\ 7. \quad 4x - 2y + z &= 6\end{aligned}$$

$$\begin{aligned}3x - 2y + 4z &= 1 \\ x + y - 2z &= 3 \\ 8. \quad 2x - 3y + 6z &= 8\end{aligned}$$

$$\begin{aligned}5x - 3y + 2z &= 3 \\ 2x + 4y - z &= 7 \\ 9. \quad x - 11y + 4z &= 3\end{aligned}$$

$$\begin{aligned}3x + 3y + 5z &= 1 \\ 3x + 5y + 9z &= 0 \\ 10. \quad 5x + 9y + 17z &= 0\end{aligned}$$

$$\begin{aligned}2x + y + 3z &= 1 \\ 2x + 6y + 8z &= 3 \\ 11. \quad 6x + 8y + 18z &= 5\end{aligned}$$

$$\begin{aligned}x + 2y - 7z &= -4 \\ 2x + y + z &= 13 \\ 12. \quad 3x + 9y - 36z &= -33\end{aligned}$$

$$\begin{aligned}2x + y - 3z &= 4 \\ 4x + 2z &= 10 \\ 13. \quad -2x + 3y - 13z &= -8\end{aligned}$$

$$\begin{aligned}4x - y + 5z &= 11 \\ x + 2y - z &= 5 \\ 14. \quad 5x - 8y + 13z &= 7\end{aligned}$$

$$\begin{aligned}x - 2y + 5z &= 2 \\ 15. \quad 3x + 2y - z &= -2\end{aligned}$$

Answers

$$\begin{aligned}1. \quad x &= -1 \\ y &= 5 \\ z &= 0\end{aligned}$$

$$\begin{aligned}2. \quad x &= 1 \\ y &= 2 \\ z &= 3\end{aligned}$$

$$\begin{aligned}3. \quad x &= 0 \\ y &= 4 \\ z &= -2\end{aligned}$$

$$\begin{aligned}4. \quad x &= 2 \\ y &= -3 \\ z &= -2\end{aligned}$$

$$\begin{aligned}5. \quad x &= -4 \\ y &= 8 \\ z &= 5\end{aligned}$$

$$\begin{aligned}6. \quad x &= 5 \\ y &= -2 \\ z &= 0\end{aligned}$$

$$\begin{aligned}7. \quad x &= 1/2 \\ y &= -3/2 \\ z &= 1\end{aligned}$$

8.No solution

9.No solution

$$\begin{aligned}10. \quad x &= 1 \\ y &= -3/2 \\ z &= 1/2\end{aligned}$$

$$x = 3/10$$

$$y = 2/5$$

11. $z = 0$

12. Infinite solutions

$$x = 5/3$$

$$y = 17/3$$

13. $z = 5/3$

14. Infinite solutions

$$x = -z$$

15. $y = 2z - 1$