

Systems of Equations with Three Variables Worksheet

Solve the following linear systems of equations.

1
$$\begin{aligned} 6x + 2y - 4z &= 15 \\ -3x - 4y + 2z &= -6 \\ 4x - 6y + 3z &= -5 \end{aligned}$$

2
$$\begin{aligned} 2a - 5u + 3y &= -4 \\ 6a + 5u - y &= 8 \\ -u - 4y &= -28 \end{aligned}$$

3
$$\begin{aligned} -8x - 8y + 8z &= 104 \\ 7x - 4y + 7z &= 8 \\ -x - 8y - z &= 76 \end{aligned}$$

4
$$\begin{aligned} 2p + q - r &= -17 \\ p + 5q - 3r &= -13 \\ -2p &= 28 - 3p - 6r \end{aligned}$$

5
$$\begin{aligned} -5x + 8y - 4z &= 38 \\ 6y + 3z &= -9 \\ -2z &= 10 \end{aligned}$$

6
$$\begin{aligned} 3x + 4y + 5z &= -3 \\ 5x - 2y - 3z &= 25 \\ 9x - y + 4z &= -12 \end{aligned}$$

7
$$\begin{aligned} -b - c &= -25 + 3a \\ 6a + c &= 10 + 5b \\ 2a + b + 3c &= 14 \end{aligned}$$

8
$$\begin{aligned} 6c + 4v - z &= -31 \\ c + v + 6z &= 14 \\ -v - 6z &= -20 \end{aligned}$$

Systems of Equations with Three Variables Worksheet

Answers

$$\begin{array}{l} \boxed{1} \quad 6x + 2y - 4z = 15 \\ -3x - 4y + 2z = -6 \\ 4x - 6y + 3z = -5 \end{array}$$

$$\begin{array}{l} \boxed{2} \quad 2a - 5u + 3y = -4 \\ 6a + 5u - y = 8 \\ -u - 4y = -28 \end{array}$$

$$x = \frac{8}{17}, y = -\frac{1}{2}, z = -3\frac{5}{17}$$

$$a = -1, u = 4, y = 6$$

$$\begin{array}{l} \boxed{3} \quad -8x - 8y + 8z = 104 \\ 7x - 4y + 7z = 8 \\ -x - 8y - z = 76 \end{array}$$

$$\begin{array}{l} \boxed{4} \quad 2p + q - r = -17 \\ p + 5q - 3r = -13 \\ -2p = 28 - 3p - 6r \end{array}$$

$$x = -4, y = -9, z = 0$$

$$p = -6\frac{5}{7}, q = 2\frac{3}{14}, r = 5\frac{11}{14}$$

$$\begin{array}{l} \boxed{5} \quad -5x + 8y - 4z = 38 \\ 6y + 3z = -9 \\ -2z = 10 \end{array}$$

$$\begin{array}{l} \boxed{6} \quad 3x + 4y + 5z = -3 \\ 5x - 2y - 3z = 25 \\ 9x - y + 4z = -12 \end{array}$$

$$x = -2, y = 1, z = -5$$

$$x = 3, y = 7, z = -8$$

$$\begin{array}{l} \boxed{7} \quad -b - c = -25 + 3a \\ 6a + c = 10 + 5b \\ 2a + b + 3c = 14 \end{array}$$

$$a = 7, b = 6, c = -2$$

$$\begin{array}{l} \boxed{8} \quad 6c + 4v - z = -31 \\ c + v + 6z = 14 \\ -v - 6z = -20 \end{array}$$

No solution