

Exercises of Systems of linear equations

1) Solve these systems of linear equations:

$$\text{a) } \left. \begin{array}{l} 4x + 7y + 7z = -13 \\ 5x + y + 7z = 50 \\ y - 8z = -25 \end{array} \right\}$$

$$\text{b) } \left. \begin{array}{l} x + 2y + 3z = 4 \\ x + 6y - 2z = 38 \\ x - 5y = -32 \end{array} \right\}$$

$$\text{c) } \left. \begin{array}{l} 7x - 3y = 5 \\ x - 2y + z = 10 \\ 9x - 4y - 7z = -14 \end{array} \right\}$$

$$\text{d) } \left. \begin{array}{l} x - y = -3 \\ x - 2y - 5z = 23 \\ 4x - 5y - 6z = 20 \end{array} \right\}$$

$$\text{e) } \left. \begin{array}{l} 3x - 5y - 9z = -30 \\ x - 7y + 8z = 7 \\ 2x + 3y - 8z = -7 \end{array} \right\}$$

$$\text{f) } \left. \begin{array}{l} x - 3y + 7z = 40 \\ 9x - 5y - 7z = -16 \\ 3x + 4y - z = 14 \end{array} \right\}$$

2) Solve the following systems of linear equations:

$$\text{a) } \left. \begin{array}{l} 20x + 6y + 16z = 17 \\ 5x - 10y = 29 \\ 20x + 2y - 20z = -9 \end{array} \right\}$$

$$\text{b) } \left. \begin{array}{l} 2x - 3y + 15z = 14 \\ 14x - 18y - 6z = 27 \\ 10x - 15y + 18z = 32 \end{array} \right\}$$

$$\text{c) } \left. \begin{array}{l} 2x - 16y = -19 \\ 8x + 2y + 12z = 11 \\ 16x + 2y + 8z = 35 \end{array} \right\}$$

$$\text{d) } \left. \begin{array}{l} x + 4y + 24z = -23 \\ 2x - 12y - 12z = -1 \\ 4x - 4y + 20z = -39 \end{array} \right\}$$

$$\text{e) } \left. \begin{array}{l} x + 6y - 21z = -26 \\ y - 2z = -2 \\ 5x + 24z = -24 \end{array} \right\}$$

$$\text{f) } \left. \begin{array}{l} x + 12y - 25z = -19 \\ x + 10z = -8 \\ x - 21y + 15z = 45 \end{array} \right\}$$

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Answers:

1) a) $x = 9, y = -9, z = 2$

c) $x = -1, y = -4, z = 3$

e) $x = 4, y = 3, z = 3$

2) a) $x = \frac{4}{5}, y = \frac{-5}{2}, z = 1$

c) $x = \frac{5}{2}, y = \frac{3}{2}, z = -1$

e) $x = -8, y = \frac{-2}{3}, z = \frac{2}{3}$

b) $x = -2, y = 6, z = -2$

d) $x = 1, y = 4, z = -6$

f) $x = 4, y = 2, z = 6$

b) $x = \frac{7}{2}, y = 1, z = \frac{2}{3}$

d) $x = -8, y = \frac{-3}{4}, z = \frac{-1}{2}$

f) $x = -2, y = \frac{-8}{3}, z = \frac{-3}{5}$