

**Exercises** <sup>[A-1]</sup>

Solve and check the following systems of equations:

$$\begin{array}{ll} 1. & 3x - y + 2z = 4 \\ & 2x + 3y - z = 14 \\ & 7x - 4y + 3z = -4 \end{array} \quad \begin{array}{l} 2. & 4t - 2u + 3v = 2 \\ & 5t - 6u + 2v = -1 \\ & 3t + 4u - 5v = 7 \end{array}$$

$$\begin{array}{l} 3. & x + y = 1 \\ & y + z = 2 \\ & z + x = 5 \end{array}$$

$$\begin{array}{l} 5. & r = 3(s - t) \\ & t = 4(s - r) \\ & r + t = 2s - 5 \end{array}$$

$$\begin{array}{l} 4. & x + 2y + 3z = 1 \\ & 4x - 4y = 3 \\ & 4y + 6z = 1 \end{array}$$

$$6. \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 4; \frac{1}{x} + \frac{1}{y} = 2; \frac{1}{y} - \frac{1}{z} = 3$$

**Exercises** <sup>[A-2]</sup>

Solve and check the following systems of equations.

$$\begin{array}{ll} 1. & x - 2y + 3z = 2 \\ & 2x - 3y + z = 1 \\ & 3x - y + 2z = 9 \end{array} \quad \begin{array}{l} 4. & x + 2y + 2z = 1 \\ & 3y + 4z = 1 \\ & 4x - y = 3 \end{array}$$

$$\begin{array}{ll} 2. & 3r - 2s + t = 7 \\ & 2r + s - 3t = 1 \\ & r + 2s + 2t = 4 \end{array} \quad \begin{array}{l} 5. & s = 2(t - u) \\ & t = 8(s - u) \\ & s + t = 3u - 1 \end{array}$$

$$\begin{array}{l} 3. & x + y = 3 \\ & y + z = 12 \\ & z + x = 7 \end{array}$$

$$6. \frac{1}{x} + \frac{1}{y} - \frac{1}{z} = -1; \frac{1}{y} + \frac{1}{z} = -1; \frac{1}{x} + \frac{1}{y} = 1$$

**Exercises** <sup>[B]</sup>

1. Show that the following system of equations does not have a unique solution:

$$\begin{array}{l} 2x + y = 8 \\ x + z = 3y - 3 \\ 3x + z = 2y + 5 \end{array}$$

2. Find the values of  $a, b, c$  which satisfy the following equations:

$$\frac{a+b}{6} = \frac{3b+4c}{12} = \frac{6c+a}{13} = \frac{a-b+10}{7}$$

3. Show that the following system of equations does not have a unique solution:

$$\begin{array}{l} y + 2z = 6 \\ y + z = 4 - x \\ y + 3z = 8 + x \end{array}$$

4. Find the values of  $a, b, c$  which satisfy the following equations:

$$\frac{b+c}{3} = \frac{2a+b}{4} = \frac{3c-b}{5} = \frac{2a+b+c}{6}$$

For part [A-1] use answers for "Pages 35-36"

Pages 35-36

1. (1, 5, 3)      3. (2, -1, 3)      5. (r, s, t) = (9, 11, 8)  
2. (1, 1, 0)      4.  $(\frac{1}{2}, -\frac{1}{4}, \frac{1}{3})$       6.  $(-\frac{1}{3}, \frac{1}{5}, \frac{1}{2})$

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1. (3, 2, 1)      3. (-1, 4, 8)      5. (s, t, u) = (6, 8, 5)  
2. (r, s, t) = (2, 0, 1)      4.  $(\frac{2}{3}, -\frac{1}{3}, \frac{1}{2})$       6.  $(\frac{1}{4}, -\frac{1}{3}, \frac{1}{2})$

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2. (a, b, c) = (8, 4, 3)      4. (a, b, c) = (3k, 2k, 4k), k any constant.