

1.) $\{(-10, 14, -2)\}$	5.) $\{(-4, -2, 1)\}$	9.) $\{(-1, -3, 5)\}$
2.) $\{(3, 1, -2)\}$	6.) $\{(-1, 4, 2)\}$	10.) $\{(-3, 1, -2)\}$
3.) $\{(3, -2, -4)\}$	7.) $\{(-1, 0, -4)\}$	11.) $\{(1, 2, 2)\}$
4.) $\{(3, 1, -2)\}$	8.) $\{(-2, 1, -1)\}$	12.) $\{(3, -3, 4)\}$

$$\begin{aligned}
 2) \quad & x + 2y + 3z = -1 \\
 & 3y + 2z = -1 \\
 & \quad \quad \quad \underline{z = -2} \\
 & 3y + 2(-2) = -1 \\
 & 3y - 4 = -1 \quad +4 \\
 & \quad \quad \quad \underline{3y = 3} \\
 & \quad \quad \quad \underline{y = 1} \\
 & x + 2(1) + 3(-2) = -1 \\
 & x + 2 - 6 = -1 \\
 & \quad \quad \quad \underline{x - 4 = -1} \quad +4 \\
 & \quad \quad \quad \underline{x = 3} \\
 & \quad \quad \quad \underline{\{(3, 1, -2)\}}
 \end{aligned}$$

$$\begin{aligned}
 7) \quad & 2x - y - z = 2 \\
 & x - 5y + 3z = -13 \\
 & -2x - 2y + z = -2 \\
 & \quad \quad \quad \underline{-2x - 2y + z = -2} \\
 & \quad \quad \quad \underline{-3y = 0} \\
 & \quad \quad \quad \underline{y = 0} \\
 & 6x - 3z = 6 \\
 & \quad \quad \quad \underline{x + 3z = -13} \\
 & \quad \quad \quad \underline{7x = -7} \\
 & \quad \quad \quad \underline{x = -1} \\
 & \quad \quad \quad \underline{\{(-1, 0, -4)\}} \\
 & \quad \quad \quad \begin{aligned}
 (3) \quad & 2x - z = 2 \\
 & x + 3z = -13 \\
 & -2x + z = -2 \\
 & \quad \quad \quad \underline{2(-1) - z = 2} \\
 & \quad \quad \quad \underline{-z = 4} \\
 & \quad \quad \quad \underline{z = -4}
 \end{aligned}
 \end{aligned}$$

$$\begin{aligned}
 7) \quad & 2x - y - z = 2 \\
 & x - 5y + 3z = -13 \\
 & -2x - 2y + z = -2 \\
 & \quad \quad \quad \underline{-2x - 2y + z = -2} \\
 & \quad \quad \quad \underline{-3y = 0} \\
 & \quad \quad \quad \underline{y = 0} \\
 & 2x - y - z = 2 \\
 & \quad \quad \quad \underline{-2x + 10y - 6z = 26} \\
 & \quad \quad \quad \underline{9y - 7z = 28} \\
 & \quad \quad \quad \underline{9(0) - 7z = 28} \\
 & \quad \quad \quad \underline{-7z = 28} \\
 & \quad \quad \quad \underline{z = -4} \\
 & x - 2(0) + 3(-4) = -13 \\
 & \quad \quad \quad \underline{x - 12 = -13} \\
 & \quad \quad \quad \underline{x = -1} \\
 & \quad \quad \quad \underline{\{(-1, 0, -4)\}}
 \end{aligned}$$

$$\begin{aligned}
 8) \quad & x + 3y + 2z = -1 \\
 & -3x - 2y + z = 3 \\
 & 2x - y + 3z = -8 \\
 & \quad \quad \quad \underline{6x + 4y - 2z = -6} \\
 & \quad \quad \quad \underline{7x + 7y = -7} \\
 & \quad \quad \quad \underline{x + y = -1} \\
 & 9x + 6y - 3z = -9 \\
 & \quad \quad \quad \underline{2x - y + 3z = -8} \\
 & \quad \quad \quad \underline{11x + 5y = -17} \\
 & \quad \quad \quad \underline{-5x - 5y = 5} \\
 & \quad \quad \quad \underline{11x + 5y = -17} \\
 & \quad \quad \quad \underline{6x = -12} \\
 & \quad \quad \quad \underline{x = -2} \\
 & -3(-2) - 2(1) + z = 3 \\
 & \quad \quad \quad \underline{4 + z = 3} \\
 & \quad \quad \quad \underline{z = -1} \\
 & \quad \quad \quad \underline{\{(-2, 1, -1)\}} \\
 & \quad \quad \quad \begin{aligned}
 (-2) \quad & x + y = -1 \\
 & \quad \quad \quad \underline{(-2) + y = -1} \\
 & \quad \quad \quad \underline{y = 1}
 \end{aligned}
 \end{aligned}$$

$$\begin{aligned}
 10) \quad & 2x + 5y + 2z = -5 \\
 & -3x + 3y + 5z = 2 \\
 & x + 4y - z = 3 \\
 & \quad \quad \quad \underline{-3x + 3y + 5z = 2} \\
 & \quad \quad \quad \underline{3x + 12y - 3z = 9} \\
 & \quad \quad \quad \underline{15y + 2z = 11} \\
 & x + 4(1) - (-2) = 3 \\
 & \quad \quad \quad \underline{x + 6 = 3} \\
 & \quad \quad \quad \underline{x = -3} \\
 & \quad \quad \quad \underline{\{(-3, 1, -2)\}} \\
 & 2x + 5y + 2z = -5 \\
 & \quad \quad \quad \underline{-2x - 8y + 2z = -6} \\
 & \quad \quad \quad \underline{-3y + 4z = -11} \\
 & \quad \quad \quad \underline{-3y + 4z = -11} \\
 & \quad \quad \quad \underline{-30y - 4z = -22} \\
 & \quad \quad \quad \underline{-33y = -33} \\
 & \quad \quad \quad \underline{-33} \\
 & \quad \quad \quad \underline{-33} \\
 & \quad \quad \quad \underline{y = 1} \\
 & 15(1) + 2z = 11 \\
 & \quad \quad \quad \underline{2z = -4} \\
 & \quad \quad \quad \underline{z = -2}
 \end{aligned}$$

$$\begin{array}{l}
 12) \quad 2x - y = 3z - 3 \\
 \quad \quad 3x + 2y = z - 1 \\
 \quad \quad x + 3y = z - 10
 \end{array}$$

$$\begin{array}{l}
 3x + 2y = z - 1 \\
 -3x - 7y = -3z + 30 \\
 \hline
 -7y = -2z + 29
 \end{array}$$

$$\begin{array}{l}
 x + 3(-3) = (4) - 10 \\
 x - 9 = -6 \\
 x = 3 \\
 \{(3, -3, 4)\}
 \end{array}$$

$$\begin{array}{l}
 2x - y = 3z - 3 \\
 -2x - 6y = -2z + 20 \\
 \hline
 -7y = z + 17
 \end{array}$$

$$\begin{array}{l}
 -7y = z + 17 \\
 -14y = 2z + 34 \\
 -7y = 2z + 29 \\
 \hline
 -21y = 63 \\
 y = -3
 \end{array}$$

$$\begin{array}{l}
 -7(-3) = z + 17 \\
 21 = z + 17 \\
 \boxed{4 = z}
 \end{array}$$