

MULTIMÍDIA

(i) $\begin{cases} 6x - 2y = 2 \\ -9x + 3y = -3 \end{cases}$

$$\begin{bmatrix} 6 & -2 \\ -9 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ -3 \end{bmatrix}$$

$D = 6 \cdot 3 - (-9) \cdot (-2) = 0$.

$$D_x = \begin{vmatrix} 2 & -2 \\ -3 & 3 \end{vmatrix} = 2 \cdot 3 - (-2) \cdot (-3) = 0$$

$$D_y = \begin{vmatrix} 6 & 2 \\ -9 & -3 \end{vmatrix} = 6 \cdot (-3) - 2 \cdot (-9) = 0$$

S.P.I.

(ii) $\begin{cases} 2x - 3y = 11 \\ x + y = 3 \end{cases}$

$$\begin{bmatrix} 2 & -3 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 11 \\ 3 \end{bmatrix}$$

$D = 2 \cdot 1 - (-3) \cdot 1 = 5$ SPD

$$D_x = \begin{vmatrix} 11 & -3 \\ 3 & 1 \end{vmatrix} = 11 \cdot 1 - (-3) \cdot 3 = 20$$

$$D_y = \begin{vmatrix} 2 & 11 \\ 1 & 3 \end{vmatrix} = 2 \cdot 3 - 1 \cdot 11 = -5$$

$x = \frac{20}{5} = 4$ $y = \frac{-5}{5} = -1$ $S = \{(4, -1)\}$

(iii) $\begin{cases} -2x + 3y = 5 \\ 4x - 6y = -1 \end{cases}$

$$\begin{bmatrix} -2 & 3 \\ 4 & -6 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ -1 \end{bmatrix}$$

$D = (-2) \cdot (-6) - 4 \cdot 3 = 0$ S.I.

$$D_x = \begin{vmatrix} 5 & 3 \\ -1 & -6 \end{vmatrix} = 5 \cdot (-6) - 3 \cdot (-1) = -27$$

(iv) $\begin{cases} x + y + z = 7 \\ 2x + y - z = 9 \\ x - 2y + 2z = 2 \end{cases}$

$$\begin{bmatrix} 1 & 1 & 1 \\ 2 & 1 & -1 \\ 1 & -2 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 7 \\ 9 \\ 2 \end{bmatrix}$$

$D = \begin{vmatrix} 1 & 1 & 1 \\ 2 & 1 & -1 \\ 1 & -2 & 2 \end{vmatrix} = -10$ SPD

$$D_x = \begin{vmatrix} 7 & 1 & 1 \\ 9 & 1 & -1 \\ 2 & -2 & 2 \end{vmatrix} = -40$$

$$D_y = \begin{vmatrix} 1 & 7 & 1 \\ 2 & 9 & -1 \\ 1 & 2 & 2 \end{vmatrix} = -20$$

$$D_z = \begin{vmatrix} 1 & 1 & 7 \\ 2 & 1 & 9 \\ 1 & -2 & 2 \end{vmatrix} = -10$$

$x = \frac{-40}{-10} = 4$

$y = \frac{-20}{-10} = 2$

$z = \frac{-10}{-10} = 1$

$S = \{(4; 2; 1)\}$

(v) $\begin{cases} 2x - 3y + 5z = 11 \\ x + 2y - z = 2 \\ x - 5y + 6z = 9 \end{cases}$

$$\begin{bmatrix} 2 & -3 & 5 \\ 1 & 2 & -1 \\ 1 & -5 & 6 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 11 \\ 2 \\ 9 \end{bmatrix}$$

$D = \begin{vmatrix} 2 & -3 & 5 \\ 1 & 2 & -1 \\ 1 & -5 & 6 \end{vmatrix} = 0$

$$D_x = \begin{vmatrix} 11 & -3 & 5 \\ 2 & 2 & -1 \\ 9 & -5 & 6 \end{vmatrix} = 0$$

$$D_y = \begin{vmatrix} 2 & 11 & 5 \\ 1 & 2 & -1 \\ 1 & 9 & 6 \end{vmatrix} = 0$$

$$D_z = \begin{vmatrix} 2 & -3 & 11 \\ 1 & 2 & 2 \\ 1 & -5 & 9 \end{vmatrix} = 0$$

S.P.I.