

Tarela barica

$$1-a) \begin{vmatrix} 2 & 3 \\ 1 & 5 \end{vmatrix} \Rightarrow \det = 10 - 3 = 7$$

$$b) \begin{vmatrix} -2 & -4 \\ 3 & 6 \end{vmatrix} \Rightarrow \det = -12 + 12 = 0$$

$$c) \begin{vmatrix} 3 & -1 & 1 \\ 2 & 1 & -1 \\ 1 & 4 & -2 \end{vmatrix} \Rightarrow \det = 2 + 8 = 10$$

$$\begin{array}{r} 1 \\ -12 \\ 4 \\ -8 \end{array} \begin{array}{r} 3 \\ -1 \\ 1 \\ 1 \end{array} \begin{array}{r} 1 \\ 8 \\ 1 \\ 2 \end{array}$$

$$d) \begin{vmatrix} 3 & 2 & -1 \\ 2 & 3 & 1 \\ 1 & 1 & 4 \end{vmatrix} \begin{array}{r} 3 \\ 2 \\ 1 \end{array} \begin{array}{r} 2 \\ 3 \\ 1 \end{array} \Rightarrow \det = 36 - 16 = 20$$

$$2-) A = (a_{ij})$$

$$a_{ij} = \begin{cases} -3, & \text{se } i = j \\ 0, & \text{se } i \neq j \end{cases}$$

$$\begin{vmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{vmatrix} \begin{array}{r} -3 \\ 0 \\ 0 \end{array} \begin{array}{r} 0 \\ -3 \\ 0 \end{array} \begin{array}{r} 0 \\ 0 \\ 0 \end{array}$$

$$\det = -27 - 0 = -27 \quad (A)$$

$$3-) \begin{vmatrix} x & 1 & x \\ 3 & x & 4 \\ 1 & 3 & 3 \end{vmatrix} \begin{array}{r} x \\ 3 \\ 1 \end{array} \begin{array}{r} 1 \\ x \\ 3 \end{array}$$

$$\Rightarrow 2x^2 - 3x - 5 = -3$$

$$2x^2 - 3x - 2 = 0$$

$$\Delta = 9 - 4 \cdot 2 \cdot -2$$

$$x = 3 \pm 5$$

$$\Delta = 9 + 16$$

$$4 \pm 6$$

$$\Delta = 25$$

$$x_1 = 2 \quad x_2 = -1$$

$$2$$

(E)

$$4.) \begin{array}{ccc|ccc} & & & 0 & x-1 & 0 \\ x-1 & -1 & 0 & x-1 & -1 & \\ 0 & x+1 & -1 & 0 & x+1 & \\ 2 & -1 & x+1 & 2 & -1 & \end{array} \Rightarrow (x^3 + x^2 - x + 1) - (x-1)$$

$$x^3 + x^2 - 2x + 2 = 2$$

$$x^3 + x^2 - 2x = 0$$

$$(x-1) \cdot (x+1)$$

$$x^2 + x - x - 1$$

$$(x^2 - 1) \cdot (x+1)$$

$$x(x^2 + x - 2) = 0$$

$$x_3 = 0$$

$$y = (x^3 + x^2 - x - 1)$$

$$\Delta = 1 - 4 \cdot 1 \cdot -2$$

$$x^2 + x - 2 = 0$$

$$\Delta = 9$$

$$x_1 + x_2 + x_3$$

$$x = \frac{-1 \pm 3}{2}$$

$$-2 + 1 + 0 = -1$$

$$x_1 = -2 \quad x_2 = +1$$

(C)

$$5.) A = (a_{ij})_{3 \times 2}$$

$$a_{ij} = 2i - 3j$$

$$\begin{bmatrix} -1 & -4 \\ 1 & -2 \\ 3 & 0 \end{bmatrix}$$

$$B = (b_{jk})_{2 \times 3}$$

$$b_{jk} = k - j$$

$$\begin{bmatrix} 0 & 1 & 2 \\ -1 & 0 & 1 \end{bmatrix}$$

$$0 \quad 1 \quad 2$$

$$-1 \quad 0 \quad 1$$

$$\begin{array}{ccc|ccc} -1 & -4 & 4 & -1 & -6 & \\ 1 & -2 & 2 & 1 & 0 & \\ 3 & 0 & 0 & 3 & 6 & \end{array}$$

$$\begin{bmatrix} 4 & -1 & -6 \\ 2 & 1 & 0 \\ 0 & 3 & 6 \end{bmatrix}$$

$$\Rightarrow \det = 0$$

$$0 \quad 4 \quad -1 \quad -6 \quad -36$$

$$-12 \quad 2 \quad 1 \quad 0 \quad 0$$

$$-12$$

(C)

$$6.) A = \begin{bmatrix} 2 & 0 & -1 \\ -1 & 1 & 0 \end{bmatrix}$$

$$B = \begin{bmatrix} 1 & -1 \\ -1 & 1 \\ 0 & 2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 \end{bmatrix}$$

$$\begin{bmatrix} -1 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 0 & 2 \end{bmatrix}$$

$$\begin{bmatrix} 2 & 0 & -1 & | & 2 & -4 \end{bmatrix}$$

$$\begin{bmatrix} -1 & 1 & 0 & | & -2 & 2 \end{bmatrix}$$

$$\begin{bmatrix} 2 & -4 \\ -2 & 2 \end{bmatrix} \Rightarrow \det = 4 - 8 = -4$$

⑤