

class-XII

Revision Worksheet

Date: 17/06/25

Matrix & Determinants

(1) Find the value of x so that the given matrix is singular:—

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

(2) co-factor of the element a_{23} in the matrix

$$\begin{bmatrix} 1 & 3 & 5 \\ 2 & 6 & 10 \\ 31 & 11 & 15 \end{bmatrix}$$

(a) $-\begin{vmatrix} 1 & 3 \\ 2 & 6 \end{vmatrix}$

(b) $\begin{vmatrix} 1 & 3 \\ 31 & 11 \end{vmatrix}$

(c) $-\begin{vmatrix} 1 & 5 \\ 31 & 15 \end{vmatrix}$

(d) $-\begin{vmatrix} 1 & 5 \\ 31 & 15 \end{vmatrix}$

(3) The adjoint matrix of $\begin{bmatrix} 3 & -5 \\ 2 & 7 \end{bmatrix}$ is—

(a) $\begin{bmatrix} -3 & +5 \\ -2 & -7 \end{bmatrix}$

(b) $\begin{bmatrix} 7 & -5 \\ 2 & 3 \end{bmatrix}$

(c) $\begin{bmatrix} 7 & 5 \\ -2 & 3 \end{bmatrix}$

(d) $\begin{bmatrix} -3 & 2 \\ -5 & -7 \end{bmatrix}$

(4) If $\begin{bmatrix} -2 & x-y & 5 \\ 1 & 0 & 4 \\ x+y & z & 7 \end{bmatrix}$ is symmetric, find the values of x, y and z .

(5) The matrix $A = \begin{bmatrix} 0 & -7 & 2 \\ 7 & 0 & 3 \\ -2 & -3 & 0 \end{bmatrix}$ is a —

- (a) Diagonal matrix (b) scalar matrix
(c) symmetric matrix (d) skew symmetric matrix

(6) Use Cramer's Rule to solve the system of linear equations $\rightarrow$

$$7x - 2y = 51$$

$$11y - 12x = 11$$

(7) If $\begin{bmatrix} x+y & x+2 \\ 2x-y & 16 \end{bmatrix} = \begin{bmatrix} 8 & 5 \\ 1 & 3y+1 \end{bmatrix}$, then

find the values of x and y .

(8) Assertion (A): The value of the determinant

$$A = \begin{vmatrix} 1 & 3 & 5 \\ 2 & -7 & 8 \\ 2 & -6 & 10 \end{vmatrix} = 0$$

Reason (R): The value of a determinant remain unchanged if its rows are changed into columns and ~~also~~ columns into rows.

(9) Find the product of the given two matrices :

$$P = \begin{bmatrix} 1 & -1 & 5 \\ 2 & 3 & 7 \\ -5 & 6 & 8 \end{bmatrix}$$

$$Q = \begin{bmatrix} 4 & 2 \\ 10 & 0 \\ 0 & -3 \end{bmatrix}$$

(10) Kamal sales three varieties of cold-drinks (Pepsi, 7up, Sprite) in his shop. He wrote down the sale (in ₹) of these three types of softdrinks in a Matrix form for the months April and May, 2025.

The Sales matrix is given as →

A ₂ (sales in ₹)	Pepsi	7up	Sprite	April, 2025
	15000	20000	10000	May, 2025
	17500	12000	10500	

~~If in the month of~~ The profit made on selling price is given in ~~column~~ the following table →

Month	Pepsi	7up	Sprite
April, 2025	5%	3%	2%
May, 2025	7%	4%	10%

Write down the profit of Kamal in matrix format.