

**Sri Pratyangira Institute**  
**IIT/JEE-NEET**

{Plot no. – 2, 3A Sector 3, PNB Road, Rachna Vaishali, GZB, (U.P)}

(Mob. no. 9871948232, 8742904739)

**DPP – 01**

Class - 12<sup>th</sup>

Matrices

**Topics:**

- **Types of Matrices.**

1. A matrix has 12 elements. What are the possible orders it can have?
2. If  $A = [a_{ij}]$  is a matrix given by  $A = [a_{ij}] = \begin{bmatrix} 4 & -2 & 1 & 3 \\ 5 & 7 & 9 & 6 \\ 21 & 15 & 18 & -25 \end{bmatrix}$  write the order of  $A$  and find the elements  $a_{24}, a_{34}$ . Also, show that  $a_{32} = a_{23} + a_{24}$ .
3. If  $A = [a_{ij}] = \begin{bmatrix} 2 & 3 & -5 \\ 1 & 4 & 9 \\ 0 & 7 & -2 \end{bmatrix}$  and  $B = [b_{ij}] = \begin{bmatrix} 2 & -1 \\ -3 & 4 \\ 1 & 2 \end{bmatrix}$  then find
  - i)  $a_{22} + b_{21}$
  - ii)  $a_{11}b_{11} + a_{22}b_{22}$ .
4. Construct a  $2 \times 2$  matrix  $A = [a_{ij}]$  whose elements are given by
  - i)  $a_{ij} = \frac{(i+2j)^2}{2}$
  - ii)  $a_{ij} = \frac{(i-2j)^2}{2}$
  - iii)  $a_{ij} = \frac{(2i+j)^2}{2}$
  - iv)  $a_{ij} = \frac{|2i-3j|}{2}$
5. Construct a  $2 \times 3$  matrix  $A = [a_{ij}]$  whose elements are given by  $a_{ij} = \frac{i-j}{i+j}$ .
6. Find  $x, y, z$  and  $w$  such that  $\begin{bmatrix} x-y & 2z+w \\ 2x-y & 2x+w \end{bmatrix} = \begin{bmatrix} 5 & 3 \\ 12 & 15 \end{bmatrix}$ .
7. If  $\begin{bmatrix} a+b & 2 \\ 5 & ab \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$ , find the values of  $a$  and  $b$ .
8. For what values of  $x$  and  $y$  are the following matrices equal?
$$A = \begin{bmatrix} 2x+1 & 3y \\ 0 & y^2-5y \end{bmatrix}, B = \begin{bmatrix} x+3 & y^2+2 \\ 0 & -6 \end{bmatrix}$$
9. If  $\begin{bmatrix} x-y & z \\ 2x-y & w \end{bmatrix} = \begin{bmatrix} -1 & 4 \\ 0 & 5 \end{bmatrix}$ , find  $x, y, w$ .
10. If  $\begin{bmatrix} 2x+1 & 5x \\ 0 & y^2+1 \end{bmatrix} = \begin{bmatrix} x+3 & 10 \\ 0 & 26 \end{bmatrix}$ , find the values of  $(x+y)$ .
11. If  $\begin{bmatrix} xy & 4 \\ z+6 & x+y \end{bmatrix} = \begin{bmatrix} 8 & w \\ 0 & 6 \end{bmatrix}$ , then find the values of  $x, y, z$  and  $w$ .