

Matrix

(3)

A rectangular array of numbers enclosed by a pair of brackets is called a matrix.

rows :- Horizontal lines of numbers.

columns :- Vertical lines of numbers.

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

Order of matrix :- No. of rows m by No. of columns n $m \times n$

Row matrix :- $[1 \ 2 \ 3 \ 4]$, has only one row. $1 \times n$

Column matrix :- $\begin{bmatrix} 1 \\ 2 \\ 3 \\ 4 \end{bmatrix}$ has only one column, $m \times 1$

Square matrix :- No. of rows and no. of columns are equal.

Rectangular matrix :- No. of rows is not equal to no. of ^{2×3} columns.

Diagonal Matrix :- $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 5 \end{bmatrix}$

Scalar Matrix :- diagonal elements are same $\begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$

Unit matrix or identity Matrix :- $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

Null matrix :- $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

Addition of matrices :- $A + B$

Subtraction of matrices :- $A - B$

Transpose of a matrix :- interchanging the rows into columns
 $A = \begin{bmatrix} -1 & 2 \\ 2 & 3 \end{bmatrix} \Rightarrow A^t = A^T | A = \begin{bmatrix} 0 & 4 \\ -4 & 0 \end{bmatrix}$
 $A^t = A$ Symmetric, $A^t = -A$ Skew-symmetric