

Symmetric and skew symmetric Matrix:

A square matrix A is said to be skew symmetric if, $A' = -A$

- Let $A = [a_{ij}]_n$, then $a_{ij} = -a_{ji}, \forall i \& j$

Example:

$$A = \begin{pmatrix} 0 & -3 & 2 \\ 3 & 0 & -6 \\ -2 & 6 & 0 \end{pmatrix}$$

$$A' = \begin{pmatrix} 0 & 3 & -2 \\ -3 & 0 & 6 \\ 2 & -6 & 0 \end{pmatrix} = -A$$

In skew – symmetric matrix, all diagonal elements are zero .

$$a_{ij} = -a_{ji} \Rightarrow a_{ii} = -a_{ii} \Rightarrow a_{ii} = 0$$