Matrices and Operations

Part I

Matrices and their Operations

- **Addition of Matrices:** Two or more matrices can be added or subtracted only if the matrices are of same order.
- **Example 1:** If $A = \begin{bmatrix} 2 & 5 \\ 6 & 4 \end{bmatrix}$ **and** $\boldsymbol{B} = \begin{bmatrix} \mathbf{4} & \mathbf{6} \\ \mathbf{7} & \mathbf{3} \end{bmatrix}$ **then**
- **find (i) A+B; and (ii) 2A+3B**
- **Solution:** Since A and B are of same order, the addition of two matrices is possible. The element of matrix A is added to corresponding element of matrix B and placed at corresponding place of resultant matrix.

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(i) $A + B = \begin{bmatrix} 2 & 5 \\ 6 & 4 \end{bmatrix} + \begin{bmatrix} 4 & 6 \\ 7 & 3 \end{bmatrix}$

$= \begin{bmatrix} 2+4 & 5+6 \\ 6+7 & 4+3 \end{bmatrix}$

$= \begin{bmatrix} 6 & 11 \\ 13 & 7 \end{bmatrix}$ Answer

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$$2A + 3B = 2\begin{bmatrix} 2 & 5 \\ 6 & 4 \end{bmatrix} + 3\begin{bmatrix} 4 & 6 \\ 7 & 3 \end{bmatrix}$$

$$= \begin{bmatrix} 4 & 10 \\ 12 & 8 \end{bmatrix} + \begin{bmatrix} 12 & 18 \\ 21 & 9 \end{bmatrix}$$

$$= \begin{bmatrix} 4 + 12 & 10 + 18 \\ 12 + 21 & 8 + 9 \end{bmatrix}$$

$$= \begin{bmatrix} 16 & 28 \\ 33 & 17 \end{bmatrix}$$ Answer

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To be Continued ……

<THANK YOU>