

Order of a Matrix.

A matrix having m rows and n columns is called a matrix of order $m \times n$ or simply $m \times n$ matrix (read as 'an m by n matrix'). A matrix A of order $m \times n$ is usually written in the following manner

$$A = \begin{bmatrix} a_{11} & a_{12} & a_{13} & \dots a_{1j} & \dots a_{1n} \\ a_{21} & a_{22} & a_{23} & \dots a_{2j} & \dots a_{2n} \\ \dots & \dots & \dots & \dots & \dots \\ a_{i1} & a_{i2} & a_{i3} & \dots a_{ij} & \dots a_{in} \\ \dots & \dots & \dots & \dots & \dots \\ a_{m1} & a_{m2} & a_{m3} & \dots a_{mj} & \dots a_{mn} \end{bmatrix} \text{ or } A = [a_{ij}]_{m \times n}, \text{ where } \begin{matrix} i = 1, 2, \dots, m \\ j = 1, 2, \dots, n \end{matrix}$$

Here a_{ij} denotes the element of i^{th} row and j^{th} column. *Example:* order of matrix $\begin{bmatrix} 3 & -1 & 5 \\ 6 & 2 & -7 \end{bmatrix}$ is

2×3

Note: A matrix of order $m \times n$ contains mn elements. Every row of such a matrix contains n elements and every column contains m elements.