

1. Identify the type of matrices given below and write the order of each matrix:

i) $A = \begin{bmatrix} 2 & 3 \end{bmatrix}$

ii) $B = \begin{bmatrix} 3 \\ -2 \\ 1 \end{bmatrix}$

iii) $C = \begin{bmatrix} 2 & 5 \\ -1 & 2 \\ 4 & 0 \end{bmatrix}$

iv) $D = \begin{bmatrix} 1 & 3 & -4 \end{bmatrix}$

v) $E = \begin{bmatrix} 3 & 4 \\ 4 & 6 \end{bmatrix}$

vi) $P = \begin{bmatrix} 0 & -4 & 3 \\ 1 & 0 & -7 \\ 2 & 2 & 0 \end{bmatrix}$

vii) $Q = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

viii) $R = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$

ix) $X = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

x) $Z = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$

2. i) $A = \begin{bmatrix} 0 & -4 & 3 \\ 1 & 0 & -7 \\ 2 & 2 & 0 \end{bmatrix}$, write the element a_{12}

ii) $B = \begin{bmatrix} -9 & 4 & -3 \\ -1 & 0 & 4 \\ 2 & 2 & 0 \end{bmatrix}$, find the sum of elements at b_{22} and b_{32}

iii) $C = \begin{bmatrix} -9 & 4 & -3 \\ -1 & 0 & 4 \\ 2 & 2 & 0 \end{bmatrix}$, find $c_{21} + c_{32} - c_{13}$

3. Construct matrix $A = [a_{ij}]$ of order 2×3 where $a_{ij} = \frac{(i+2j)^2}{2}$

4. Construct matrix $B = [b_{ij}]$ of order 2×2 where $b_{ij} = \frac{|i-j|}{3}$

5. How many distinct 2×2 matrices can be formed by using numbers 5, 7 and -1? Justify your answer.

6. A matrix has 14 elements. How many matrices of different orders are possible?

7. Find the values of a, b, c and d from the equation:

$$\begin{bmatrix} 14 & a+b \\ c+d & b+c \end{bmatrix} = \begin{bmatrix} a & -b \\ 8 & 0 \end{bmatrix}$$