Latex Assignment16

30 August, 2023

Ex 12.3.1

1. In the matrix $A = \begin{bmatrix} 2 & 5 & 19 & -7 \\ 25 & -2 & \frac{5}{2} & 12 \\ \sqrt{3} & 1 & -5 & 17, \end{bmatrix}$, write:

   (i) The order of the matrix

   (ii) The number of elements

   (iii) Write the elements $a_{13}, a_{21}, a_{33}, a_{24}, a_{23}$

   .

2. If a matrix has 24 elements, what are the possible order it can have? What if, it has 13 elements?

3. If a matrix has 18 elements, what are the possible orders it can have? What, if it has 5 elements?

4. Construct a 2×2 matrix, $A = [a_{ij}]$, whose elements are given by:

   (i) $a_i j = \frac{(i+j)^2}{2}$

   (ii) $a_i j = \frac{i}{j}$

   (iii) $a_i j = \frac{(i+2j)^2}{2}$

5. Construct a 3×4 matrix, whose elements are given by:

   (i) $a_i j = \frac{1}{2} \left| -3i + j \right|$

   (ii) $a_i j = 2i - j$

6. Find the values of x, y and z from the following equations:

   (i) $\begin{bmatrix} 4 & 3 \\ x & 5 \end{bmatrix} = \begin{bmatrix} y & z \\ 1 & 5 \end{bmatrix}$

   (ii) $\begin{bmatrix} x+y & 2 \\ 5+z & xy \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ 5 & 8 \end{bmatrix}$

(iii) $\begin{bmatrix} x + y + z \\ x + z \\ y + z \end{bmatrix} = \begin{bmatrix} 9 \\ 5 \\ 7 \end{bmatrix}$

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

$$\begin{bmatrix} a - b & 2a - c \\ 2a - b & 3c + d \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix} \tag{1}$$

8. $A = [a_{ij}]_{m \times n\backslash}$ is a square matrix, if:

   (a) $m \le n$

   (b) $m \ge n$

   (c) $m = n$

   (d) None of these

9. Which of the given values of x and y make the following pair of matrices equal:

$$\begin{bmatrix} 3x + 7 & 5 \\ y + 1 & 2 - 3x \end{bmatrix}, \begin{bmatrix} 0 & y - 2 \\ 8 & 4 \end{bmatrix} \tag{2}$$

   (a) $x = \frac{-1}{3}, y = 7$

   (b) Not possible to find

   (c) $y = 7, x = \frac{2}{3}$

   (d) $x = \frac{1}{3}, y = \frac{2}{3}$

10. The number of all possible matrices of order 3×3 with each entry 0 or 1 is:

    (a) 27

    (b) 81

    (c) 18

    (d) 512