

A.Check your understanding:

Worksheet 2.1 Understanding Matrix

1. Given the matrix $A = \begin{pmatrix} 2 & 1 & 5 \\ 5 & 7 & -6 \\ 3 & 0 & 4 \end{pmatrix}$ and a_{ij} is an element of matrix A. Find each of the following values

a. a_{13}

b. a_{23}

c. a_{32}

2. Determine whether the following pairs of matrices are equal.

a. $M = \begin{pmatrix} 4 & 0 \\ 5 & -3 \end{pmatrix}$ and $N = \begin{pmatrix} 4 & 0 \\ 5 & -3 \end{pmatrix}$

b. $P = \begin{pmatrix} 5 & 8 & 3 \\ -2 & 0 & 4 \end{pmatrix}$ and $Q = \begin{pmatrix} 5 & 0 & 3 \\ -2 & 8 & 4 \end{pmatrix}$

c. $R = \begin{pmatrix} 4 \\ -3 \\ 7 \end{pmatrix}$ and $S = (4 \quad -3 \quad 7)$

B. Solving problem involving equal matrices

Examples:

1. Given that matrix $P = \begin{pmatrix} 5 & x \\ 12 & -6 \end{pmatrix}$ and matrix $Q = \begin{pmatrix} 5 & x \\ x+y & -6 \end{pmatrix}$ and $P = Q$.

Find the values of x and y.

2. Given $\begin{pmatrix} a \\ a+b \end{pmatrix} = \begin{pmatrix} 5 \\ 4 \end{pmatrix}$, what are the values of a and b ?

3. Given matrix $X = \begin{pmatrix} 5 & 3 \\ 2 & p \end{pmatrix}$, matrix $Y = \begin{pmatrix} q & 3 \\ 2 & -2 \end{pmatrix}$ and $X = Y$.

Find the values of p and q .

4. Write the order of the following matrices.

a. $[2 \quad -1]$

b. $\begin{bmatrix} 2 \\ 0 \end{bmatrix}$

c. $[1 \quad 2 \quad -2]$

d. $\begin{bmatrix} 2 \\ 1 \\ 0 \end{bmatrix}$

e. $\begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$

f. $\begin{bmatrix} 3 & 4 & 0 \\ 5 & 6 & -1 \end{bmatrix}$

g. $\begin{bmatrix} 3 & 2 \\ 1 & -1 \\ 2 & -3 \end{bmatrix}$