



## MATHEMATICS CH- 3- MATRICES

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: XII Sec: \_\_\_\_

1. Find the values of x, y and z if 
$$\begin{bmatrix} x + y + z \\ x + z \\ y + z \end{bmatrix} = \begin{bmatrix} 9 \\ 5 \\ 7 \end{bmatrix}$$

2. For a 2x2 matrix,  $A = [a_{ij}]$ , whose elements are given by  $a_{ij} = i-j$ , write the value of  $a_{12}$ .

3. If the matrix  $A = \begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$  and  $A^2 = kA$ , write the value of k.

4. Find the value of x if 
$$\begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$$

5. Show that the matrix  $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$  satisfies the equation  $A^2 - 4A + I = O$ , where I is the identity element of the 2x2 matrix and O is a 2x2 zero matrix. Using this equation, find  $A^{-1}$ .

6. Express the following matrix as the sum of a symmetric and a skew symmetric matrix, and verify the result.

$$\begin{bmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{bmatrix}$$

7. Find a matrix X so that 
$$X \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} = \begin{bmatrix} -7 & -8 & -9 \\ 2 & 4 & 6 \end{bmatrix}$$

8. For well being of an orphanage, three trusts A, B and C has donated 10%, 15% and 20% of their total fund 200000, 300000 and 500000 respectively. Using matrix multiplication find the total amount of money received by orphanage by three trust.