

!8646000"

BRINDAVAN HIGHER SECONDARY SCHOOL

WEEKLY ASSIGNMENT TEST

10th Standard

Date : 09-Nov-22

Maths

Reg.No. :

--	--	--	--	--	--

Exam Time : 01:30:00 Hrs

Total Marks : 50

10 x 2 = 20

1) If a matrix has 16 elements, what are the possible orders it can have?

2) Construct a 3 x 3 matrix whose elements are $a_{ij} = i^2j^2$

3) If $A = \begin{bmatrix} 5 & 2 & 2 \\ -\sqrt{17} & 0.7 & \frac{5}{2} \\ 8 & 3 & 1 \end{bmatrix}$ then verify $(A^T)^T = A$

4) If $A = \begin{bmatrix} 5 & 4 & -2 \\ \frac{1}{2} & \frac{3}{4} & \sqrt{2} \\ 1 & 9 & 4 \end{bmatrix}$, $B = \begin{bmatrix} -7 & 4 & -3 \\ \frac{1}{4} & \frac{7}{2} & 3 \\ 5 & -6 & 9 \end{bmatrix}$, find $4A - 3B$.

5) Show that the matrices $A = \begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -2 \\ -3 & 1 \end{bmatrix}$ satisfy commutative property $AB = BA$

6) If $A = \begin{bmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{bmatrix}$ prove that $AA^T = I$.

7) Verify that $A^2 = I$ when $A = \begin{pmatrix} 5 & -4 \\ 6 & -5 \end{pmatrix}$

8) In the matrix $A = \begin{bmatrix} 8 & 9 & 4 & 3 \\ -1 & \sqrt{7} & \frac{\sqrt{3}}{2} & 5 \\ 1 & 4 & 3 & 0 \\ 6 & 8 & -11 & 1 \end{bmatrix}$

i) Number of the elements ii) The order of the matrix iii) Write the elements a_{22} , a_{23} , a_{24} , a_{34} , a_{43} , a_{44} .

9) Find the values of x, y and z from the following equations.

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

10) Find the values of x, y, z if

$$[x \quad y - z \quad z + 3] + [y \quad 4 \quad 3] = [4 \quad 8 \quad 16]$$

6 x 5 = 30

11) If $A = \begin{bmatrix} 4 & 3 & 1 \\ 2 & 3 & -8 \\ 1 & 0 & -4 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 3 & 4 \\ 1 & 9 & 2 \\ -7 & 1 & -1 \end{bmatrix}$ and $C = \begin{bmatrix} 8 & 3 & 4 \\ 1 & -2 & 3 \\ 2 & 4 & -1 \end{bmatrix}$ then verify that $A + (B + C) = (A + B) + C$.

- 12) Find X and Y if $X + Y = \begin{bmatrix} 7 & 0 \\ 3 & 5 \end{bmatrix}$ and $X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 4 \end{bmatrix}$
- 13) If $A = \begin{bmatrix} 1 & 1 \\ -1 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 2 \\ -4 & 2 \end{bmatrix}$, $C = \begin{bmatrix} -7 & 6 \\ 3 & 2 \end{bmatrix}$ verify that $A(B + C) = AB + AC$
- 14) If $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & -1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -1 \\ -1 & 4 \\ 0 & 2 \end{bmatrix}$ show that $(AB)^T = B^T A^T$
- 15) If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ show that $A^2 - (a + d)A = (bc - ad)I_2$
- 16) If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ show that $A^2 - 5A + 7I_2 = 0$

www.Padasalai.Net