INTERNATIONAL INDIAN SCHOOL BURAIADAH

WORK SHEET-2025-26

SUBJECT: MATHS

CHAPTER: DETERMINANTS

1-If $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$ **then write the value of x . (CBSE-2013)**

2-Evaluate $\begin{vmatrix} \cos 15^0 & \sin 15^0 \\ \sin 75^0 & \cos 75^0 \end{vmatrix}$ **(CBSE-2011)**

3- If A = $\begin{bmatrix} 1 & 2 \\ 3 & -1 \end{bmatrix}$ **and B =** $\begin{bmatrix} 1 & -4 \\ 3 & -2 \end{bmatrix}$**, find** $|AB|$ **(CBSE-2016)**

4- If A ia a square matrix of order 3, with $|A| = 9$ **, then write the value of** $|2 \text{ adj } A|$**.**
(CBSE-2019)

5- If A = $\begin{bmatrix} 2 & 0 & 0 \\ -1 & 2 & 3 \\ 3 & 3 & 5 \end{bmatrix}$ **, then find A (adj A). (CBSE-2020)**

6-Evaluate the determinant $\begin{vmatrix} x^2-x+1 & x-1 \\ x+1 & x+1 \end{vmatrix}$

7- If A_{ij} **is the cofactor of the element** a_{ij} **of the determinant** $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$ **,then write the value of** $a_{32} . A_{32}$ ***(CBSE-2013)***

8-For A = $\begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$**, write** A^{-1}**. (CBSE-2020)**

9-Find the equation of line joining (3,1) and (9,3) using determinant.

10-Using co-factors of elements of third column , Evaluate $\Delta = \begin{vmatrix} 1 & x & yz \\ 1 & y & zx \\ 1 & z & xy \end{vmatrix}$

11-Let A = $\begin{bmatrix} 3 & 7 \\ 2 & 5 \end{bmatrix}$ **and** $B = \begin{bmatrix} 6 & 8 \\ 7 & 9 \end{bmatrix}$**, verify that (AB)**$^{-1}$ **=** $B^{-1}A^{-1}$

12- If A= $\begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ **find** A^{-1}**. Use it to solve the system of equations**

$2x - 3y + 5z = 11$, $3x + 2y - 4z = -5$, $x + y - 2z = -3$ **(CBSE-2018)**

13- If A= $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 2 \\ 3 & 1 & 1 \end{bmatrix}$ **find** A^{-1}**. Use it to solve the system of equations**

$x + y + z = 6$, $x + 2z = 7$, $3x + y + z = 12$ **(CBSE-2019)**

14- Using matrix ,solve the following system of equations:

$2x - 3y + 5z = 11$, $3x + 2y - 4z = -5$, $x + y - 2z = -3$ **(CBSE-2009)**

15-Find the adjoint of the matrix A= $\begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$ **and hence show that A.(adj A) =** $|A|\, I_3$

(CBSE-2015)

16-- Using matrix ,solve the following system of equations:

$x + 2y + 3z = 6$, $2x - y + z = 2$, $3x + 2y - 2z = 3$ **(CBSE-2023)**

17- If = $\begin{bmatrix} \cos\alpha & \sin\alpha & 0 \\ \sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 1 \end{bmatrix}$ **, find adj A and verify that A (adj A) A =** $|A|\, I_3$ **(CBSE-2016)**

18- If A= $\begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$ **and** B^{-1} **= =** $\begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ **, find (AB)**$^{-1}$ **(CBSE-2023)**

19-A trust invested some money in two types of bonds.The first bond pays 10% interest and second bond pays 12% interest.The trust received Rs 2,800 as interest.However , if trust had interchanged money in bonds ,they would have got Rs 100 less as interest.Using matrix method ,find the amount invested by the trust. (CBSE-2016)

20- A shopkeeper has 3 varieties of pens 'A' , 'B' , 'C'. Meenu purchased 1 pen of each variety for a total of Rs 21.Jeevan purchased 4 pens of 'A' variety ,3 pens of 'B' variety and 2 pens of 'C' variety for Rs 60. While Shikha purchased 6 pens of 'A' variety , 2 pens of 'B' variety and 3 pens of 'C' variety for Rs 70.Using matrix method ,find the cost of each variety of pen .

(CBSE-2016)