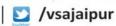


HREE ACAD



An English Medium Co.Ed. School | Science & Commerce

W: www.vsajaipur.com | E: vsajaipur@gmail.com M.: +91 9460356652, 8058999828 Add.: 84, Krishna Vihar, Behind Narayan Niwas, Gopalpura Bypass, Jaipur - 302015







Class - 12th

Chapter-5

Subject Maths

Worksheet-24

Inverse of a Matrix and Linear Equations

1. Solve the equations using matrix method:

(i)
$$2x - y = -2$$

(ii)
$$5x + 7y + 2 = 0$$

$$3x + 4y = 3$$

$$4x + 6y + 3 = 0$$

2. If $A = \begin{bmatrix} 1 & -2 & 0 \\ 2 & 1 & 3 \\ 0 & -2 & 1 \end{bmatrix}$ then find A^{-1} and solve the system of equations:

$$x-2y=10$$
, $2x + y + 3z = 8$, $-2y + z = 7$.

$$\begin{vmatrix} -4 & 4 & 4 \\ -7 & 1 & \text{an3} \\ 5 & -3 & -1 \end{vmatrix}$$

3. Find the product of matrices
$$\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & \text{an3} \\ 5 & -3 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & \text{and2olve} \\ 2 & 1 & 3 \end{bmatrix}$$

the system of equations using the above product

$$x - y + z = 4$$

$$x - 2y - 2z = 9$$

$$2x + y + 3z = 1$$

4. Find the inverse of the matrix
$$\begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$$
 and with the help of this solve the

system of equations
$$\begin{bmatrix} 1 & 0 & 1 \\ 2 & 1 & 0 \\ 0 & 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \frac{1}{2} \begin{bmatrix} 2y \\ 6z \\ -2x \end{bmatrix} + 2 \begin{bmatrix} 2 \\ 0 \\ 1 \end{bmatrix}$$

5. If the side of an equilateral triangle is a and vertices are (x_1, y_1) , (x_2, y_2) and (x_3, y_3) then prove that

$$\begin{vmatrix} x_1 & y_1 & 2 \\ x_2 & y_2 & 2 \\ x_3 & y_3 & 2 \end{vmatrix}^2 = 3a^4$$