

Course Code:22103>: <Subject Code: BMS>: <Subject Name: Basic Mathematics>: <Matrices>:

<UO-1.3.3>: <Assessments>: <Formative>

<Mrs. Anantmati S. Patil>

**Assessment Type: Formative Assessments: Embedded questions in video**

Set 1: Question No 1	Set 1: Question No 2	Set 1: Question No 3
State the formula of $A^{-1}$	Find inverse of $A = \begin{bmatrix} -1 & 1 & 1 \\ -2 & 2 & 2 \\ 3 & 2 & 1 \end{bmatrix}$	The solution X of the matrix equation $A \times X = B$ is given by
Recall/ Remembering	Understanding	Application
a) $A^{-1} = Adj A$	a) $A^{-1} = \begin{bmatrix} -2 & -1 & 0 \\ -8 & -4 & 0 \\ -10 & -5 & 0 \end{bmatrix}$	a) $X = A^{-1} \times B$
b) $A^{-1} = \frac{-1}{\det A} \times Adj A$	b) $A^{-1} = \begin{bmatrix} -2 & -8 & -10 \\ -1 & -4 & -5 \\ 0 & -5 & 0 \end{bmatrix}$	b) $X = B \times A^{-1}$
c) $A^{-1} = [c_{ij}]^t$	c) $A^{-1} = \begin{bmatrix} -2 & 1 & 0 \\ 8 & -4 & 0 \\ -10 & 5 & 0 \end{bmatrix}$	c) $X = A \times B$
d) $A^{-1} = \frac{1}{ A } \times Adj A$	d) Inverse does not exist.	d) $X = B \times A$
Ans: <d>	Ans: <d>	Ans: <a>

Set 2: Question No 1	Set 2: Question No 2	Set 2: Question No 3
The inverse of the matrix A is given by	The cofactors are given by the formula	For solving simultaneous equations the matrix equation is $AX=B$ . Here matrix B is
Recall/ Remembering	Understanding	Recall/ Remembering
a) $A^{-1} = Adj A$	a) $c_{ij} = (-1)^{i+j} \times M_{ij}$ Where $M_{ij}$ is a minor	a) row matrix of constants
b) $A^{-1} = \frac{1}{ A } \times Adj A$	b) $c_{ij} = (-1)^{i+j} \times M_{ji}$ Where $M_{ji}$ is a minor	b) square matrix of coefficients
c) $A^{-1} = \frac{-1}{ A } \times Adj A$	c) $c_{ij} = M_{ij}$ Where $M_{ij}$ is a minor	c) column matrix of variables
d) $A^{-1} = A \times Adj A$	d) none of above	d) column matrix of constants
Ans: <b>	Ans: <a>	Ans: <d>

**Assessment Type: Summative: End of CO: in LMS**

Summative: Q 1	Summative: Q 2	Summative: Q 3	Summative: Q 4	Summative: Q 5
<p>If <math>A = \begin{bmatrix} 2 &amp; -1 \\ 4 &amp; 3 \end{bmatrix}</math>, find <math>A^{-1}</math>.</p>	<p>Using matrix method, solve the simultaneous equations <math>x+y+z=6</math> ; <math>x-y+2z=5</math> ; <math>2x+y-z=1</math></p>	<p>Find the inverse of the matrix: <math>A = \begin{bmatrix} 3 &amp; -3 &amp; 4 \\ 2 &amp; -3 &amp; 4 \\ 0 &amp; -1 &amp; 1 \end{bmatrix}</math></p>	<p>If <math>A = \begin{bmatrix} -1 &amp; 1 &amp; 1 \\ 2 &amp; 4 &amp; 2 \\ 3 &amp; 2 &amp; 1 \end{bmatrix}</math> then find Adj A</p>	<p>Using matrix method, solve the simultaneous equations <math>2x+y-z=3</math>; <math>x-2y+3z=1</math>; <math>3x+y+2z=1</math></p>
Recall/ Remembering	Application	Application	Understanding	Application
a) $\frac{1}{10} \times \begin{bmatrix} 3 & -1 \\ 4 & 2 \end{bmatrix}$	a) $x=1, y=2, z=-3$	a) $\begin{bmatrix} 1 & -1 & 0 \\ -2 & 3 & -4 \\ -2 & 3 & -3 \end{bmatrix}$	a) $\begin{bmatrix} 0 & 1 & -2 \\ 4 & -4 & 4 \\ -8 & 5 & -6 \end{bmatrix}$	a) $x=1, y=2, z=1$
b) $\frac{1}{10} \times \begin{bmatrix} -3 & -1 \\ 4 & -2 \end{bmatrix}$	b) $x=-1, y=2, z=-3$	b) $\frac{1}{5} \times \begin{bmatrix} 1 & -1 & 0 \\ -2 & 3 & -4 \\ -2 & 3 & -3 \end{bmatrix}$	b) $\frac{-1}{4} \times \begin{bmatrix} 0 & 1 & -2 \\ 4 & -4 & 4 \\ -8 & 5 & -6 \end{bmatrix}$	b) $x=23/14,$ $y=-3/2,$ $z=-17/14$
c) $\frac{1}{10} \times \begin{bmatrix} 3 & 1 \\ -4 & 2 \end{bmatrix}$	c) $x=1, y=-2, z=-3$	c) $\frac{1}{11} \times \begin{bmatrix} 1 & -1 & 0 \\ -2 & 3 & -4 \\ -2 & 3 & -3 \end{bmatrix}$	c) $\frac{-1}{4} \times \begin{bmatrix} 0 & -1 & -2 \\ -4 & -4 & -4 \\ -8 & -5 & -6 \end{bmatrix}$	c) $x=23/14,$ $y=3/2,$ $z=-17/14$
d) $\begin{bmatrix} 3 & 1 \\ -4 & 2 \end{bmatrix}$	d) $x=1, y=2, z=3$	d) $\begin{bmatrix} 1 & 1 & 0 \\ 2 & 3 & 4 \\ -2 & -3 & -3 \end{bmatrix}$	d) Does not exist	d) No Solution
Ans: <c>	Ans: <d>	Ans: <a>	Ans: <a>	Ans: <b>

**Assessment Type: Practice Worksheets: End of CO: in LMS/ downloadable PDF**

<b>A.</b> If $A = \begin{bmatrix} -1 & 1 & 1 \\ 2 & 4 & 2 \\ 3 & 2 & 1 \end{bmatrix}$ then find Adj A	<b>B.</b> Calculate the adjoint of matrix of A if $A = \begin{bmatrix} 1 & 2 & 6 \\ 7 & 2 & 5 \\ 8 & 2 & 10 \end{bmatrix}$
<b>A. Answer Space</b>	<b>B. Answer Space</b>

**C.** Find the inverse of the matrix  $A = \begin{bmatrix} 3 & 1 & 2 \\ 4 & 1 & 1 \\ 2 & -1 & 3 \end{bmatrix}$

**D.** Find the inverse of the matrix  $A = \begin{bmatrix} 1 & -3 & 2 \\ -3 & 3 & -1 \\ 2 & -1 & 0 \end{bmatrix}$  by using adjoint method.

**C. Answer Space**

**D. Answer Space**

**E.** Solve the equations using matrix method  
 $x + 3y + 2z = 6$ ,  $3x - 2y + 5z = 5$ ,  $2x - 3y + 6z = 7$

**F.** Using matrix method, solve the simultaneous equations.

$$x + y + z = 6; \quad x - y + 2z = 5; \quad 2x + y - z = 1$$

**E. Answer Space**

**F. Answer Space**

**G.** Solve by matrix method the set of equations.

$$x + y + z = 2; \quad y + z = 1; \quad z + x = 3$$

**H.** Using matrix method, solve the simultaneous equations.

$$x + y = 3; \quad y + z = 5; \quad z + x = 4$$

**G. Answer Space**

**H. Answer Space**