Algebra 2

1-07 Use Inverse Matrices to Solve Linear Systems (12.4)

Identity Matrix

The Identity Matrix _____ with any matrix of the _____ dimension equals the _____ matrix.

$A \cdot I = I \cdot A =$ _____

This is the matrix equivalent of 1

$\begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}$ $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\0 & 0 & 1\end{bmatrix}$

You cannot _____ by a matrix!

So we _____ by the _____ of a matrix.

$A \cdot A^{-1} =$ _____

If A, B, and X are matrices, and

$A \cdot X = B$

$A^{-1} \cdot A \cdot X = A^{-1} \cdot B$

$I \cdot X = A^{-1} \cdot B$

$X =$ _____

Inverse Matrix

The Rule for 2×2

If $A = \begin{bmatrix}a & b\\c & d\end{bmatrix}$, then $A^{-1} = \frac{1}{\begin{vmatrix}a & b\\c & d\end{vmatrix}}\begin{bmatrix}d & -b\\-c & a\end{bmatrix}$

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

$\begin{bmatrix}-2 & -1\\4 & 0\end{bmatrix}^{-1}$

Solve a matrix equation

$AX = B$

$$\begin{bmatrix} -3 & 4 \\ 5 & -7 \end{bmatrix} X = \begin{bmatrix} 3 & 8 \\ 2 & -2 \end{bmatrix}$$

Solve a system of linear equations

$$\begin{aligned} 2x + \ y &= -13 \\ x - 3y &= \ \ 11 \end{aligned}$$

676 #1, 5, 9, 11, 13, 15, 17, 27, 29, 31, and Mixed Review = 15