Class Discussion

Unit 7 Topic 6 Part 1 Inverse matrix

Only Square Matrices have inverse matrices, and not all square matrices have its inverse

Define A^{-1} :

If A is a square matrix and $A^{-1}A = AA^{-1} = I$ then A^{-1} is the inverse matrix of A

How to find A^{-1} ?

1. setup an augmented matrix $[A \mid I_n]$

2. Use gauss-jordan elimination to perform on the augmented matrix until it reaches the form of $[I_n \mid X]$

3. $A^{-1} = X$

Ex1: Find A^{-1} if $A = \begin{bmatrix} 3 & 7 & 1 \\ 2 & 3 & 4 \\ 0 & 1 & 5 \end{bmatrix}$

Ex2: Find A^{-1} if $A = \begin{bmatrix} 1 & 2 & 5 \\ 2 & 4 & 1 \\ 1 & -1 & 2 \end{bmatrix}$