

$$3(3^{-1}) = 1 \quad 12(12^{-1}) = 1 \quad 0(0^{-1}) = 1 \times \text{WRONG (undefined)}$$

$A A^{-1} = I = A^{-1} A$  only for  $n \times n$  (or, square) matrices

(A matrix) of (A matrix)  $\begin{bmatrix} 3 & 4 \\ 2 & 16 \end{bmatrix}_{2 \times 2}$   $\begin{bmatrix} 0.04 & -0.1 \\ 0.05 & 0.075 \end{bmatrix}_{2 \times 2}$   $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}_{2 \times 2} = I_{2 \times 2}$

$A A^{-1} =$

$A = \begin{bmatrix} 1 & 2 & 0 \\ 3 & 5 & 9 \end{bmatrix}_{2 \times 3}$   $A^T = \begin{bmatrix} 1 & 3 \\ 2 & 5 \\ 0 & 9 \end{bmatrix}_{3 \times 2}$

$A_{ij} = B_{ji}$

$A_{12} = 2$   $B_{21} = 2$   $A_{23} = 9$   $B_{32} = 9$

$\begin{bmatrix} 1 & 3 \\ 2 & 5 \\ 0 & 9 \end{bmatrix}^T = \begin{bmatrix} 1 & 2 \\ 3 & 5 \\ 0 & 9 \end{bmatrix}$

$A = \begin{bmatrix} 1 & 0 & 1 \\ 2 & -2 & -1 \\ 3 & 0 & 0 \end{bmatrix}$

$A^{-1} = \frac{1}{|A|} \text{adj}^o(A)$

$|A| = 1(0-0) - 0( ) + 1(0+6) = 6$

$\text{adj}^o(A) = \begin{bmatrix} +0 & -3 & +6 \\ -0 & +3 & -0 \\ +2 & -3 & +2 \end{bmatrix}$

$\text{adj}^o(A) = \begin{bmatrix} 0 & -3 & 6 \\ 0 & -3 & 0 \\ 2 & 3 & -2 \end{bmatrix}^T = \begin{bmatrix} 0 & 0 & 2 \\ -3 & -3 & 3 \\ 6 & 0 & -2 \end{bmatrix}$

$A^{-1} = \begin{bmatrix} 0 & 0 & 1/3 \\ -1/2 & -1/2 & 1/2 \\ 1 & 0 & -1/3 \end{bmatrix}$

~~$A^{-1} = \frac{1}{6} \begin{bmatrix} 0 & -3 & 6 \\ 0 & -3 & 0 \\ 2 & 3 & -2 \end{bmatrix}$~~

~~$A^{-1} = \begin{bmatrix} 0 & -1/2 & 1 \\ 0 & -1/2 & 0 \\ 1/3 & 1/2 & -1/3 \end{bmatrix}$~~