

Instructions: Clearly answer each of the questions below. Remember to check the back side. Show your work and any formulas you employ. Simplify all answers as far as possible.

1. (1 pt) A matrix that does not have an inverse is called what?

singular

2. (1 pt) If A is a 2×2 invertible matrix, then what is $A^{-1}A$ equal to?

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

3. (1 pt) Calculate $\begin{bmatrix} 4 & 1 & 3 \\ 1 & 4 & 0 \end{bmatrix}^T$

$\begin{bmatrix} 4 & 1 \\ 1 & 4 \\ 3 & 0 \end{bmatrix}^T$

4. (2 pt) Calculate $\begin{bmatrix} 2 & 0 \\ -3 & 5 \end{bmatrix} \begin{bmatrix} 4 & -3 \\ 3 & -5 \end{bmatrix}$.

$\begin{bmatrix} 8 & -6 \\ 13 & 14 \end{bmatrix}$

5. (3 pts) Calculate the inverse of the matrix $\begin{bmatrix} -3 & 3 \\ 5 & 1 \end{bmatrix}$.

$\frac{1}{18} \begin{bmatrix} -1 & 3 \\ 5 & 3 \end{bmatrix}$