Quiz 3 Class 19

Linear Algebra I   Section:

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NAME & ID(Please print legibly)   Week 4

PLEASE SHOW ALL YOUR WORK.

1. Prove that every nonsingular matrix is invertible.

2.   a. Describe a subspace of $M = \mathbb{R}^{2\times 2}$ of all 2×2 matrices that contains

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

but not

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

   b. If a subspace of $M = \mathbb{R}^{2\times 2}$ contains A and B, must it contain I?

   c. Describe a subspace of M that contains no nonzero diagonal matrices.