

國立虎尾科技大學九十七學年度第一學期平時考(三)試題

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1. Compute AB if AB is defined where $A = \begin{pmatrix} 3 \\ 0 \\ 1 \\ 4 \end{pmatrix}$ and $B = (3 \ -2 \ 7)$.

2. Find all invertible matrices S such that $S^{-1} \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix} S = \begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$.

3. Find k if Matrix $\begin{bmatrix} k & -2 \\ 5 & k-6 \end{bmatrix}$ is invertible.

4. Find all linear transformations T from R^2 to R^2 such that

$$T \begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} 2 \\ 1 \end{bmatrix} \quad \text{and} \quad T \begin{bmatrix} 2 \\ 5 \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \end{bmatrix}.$$