KUTAISI INTERNATIONAL UNIVERSITY

Quiz 4

Linear Algebra for Informatics
Fall semester 2024
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Problem

Find all matrices X that satisfy the given matrix equation $\begin{pmatrix} 2 & 3 \\ 1 & -1 \end{pmatrix} X = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$

Problem

Find the inverse of the matrix $\begin{pmatrix} 1 & 1 & 2 \\ 2 & -1 & 0 \\ 2 & 2 & 1 \end{pmatrix}$

Problem

Let $T : \mathbb{R}^2 \to \mathbb{R}^2$ be the orthogonal projection onto the vector $u = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$. Is T invertible?

If so, what is T^{-1}?