



Problem

Find all matrices X that satisfy the given matrix equation $\begin{pmatrix} 1 & 2 \\ 2 & 4 \end{pmatrix} X = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$



Problem

Find the inverse of the matrix $\begin{pmatrix} 1 & 0 & 4 \\ 0 & 1 & 2 \\ 0 & -3 & -4 \end{pmatrix}$



Problem

Let $T: \mathbb{R}^2 \to \mathbb{R}^2$ be the reflection over the y-axis. Is T invertible? If so, what is T^{-1} ?