Problem 1

Determine if $A = \begin{bmatrix} 1 & 2 \\ -2 & -3 \end{bmatrix}$ is diagonalizable. If it is, find a diagonal matrix D, and an invertible matrix P such that $D = P^{-1}AP$.

Problem 2

Determine if $A = \begin{bmatrix} 0 & -1 \\ 4 & 5 \end{bmatrix}$ is diagonalizable. If it is, find a diagonal matrix D, and an invertible matrix P such that $D = P^{-1}AP$.

Problem 3

Determine if $A = \begin{bmatrix} 1 & 2 & -3 \\ 0 & 3 & -2 \\ 0 & 0 & 2 \end{bmatrix}$ is diagonalizable. If it is, find a diagonal matrix D, and an invertible matrix P such that $D = P^{-1}AP$.

Problem 4

Determine if $A = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 2 \end{bmatrix}$ is diagonalizable. If it is, find a diagonal matrix D, and an invertible matrix P such that $D = P^{-1}AP$.

Problem 5

Determine if $A = \begin{bmatrix} 1 & 2 \\ -1 & -1 \end{bmatrix}$ is diagonalizable. If it is, find a diagonal matrix D, and an invertible matrix P such that $D = P^{-1}AP$.