

Algebra - Eigenvalues

Grade 12 | Difficulty: Hard

1. Find the eigenvalues and eigenvectors of the matrix: $\begin{pmatrix} 4 & -2 \\ 1 & 1 \end{pmatrix}$.
2. Determine if the given matrix is diagonalizable.
3. Solve the characteristic equation of the given matrix.
4. Find the geometric multiplicity of an eigenvalue.
5. Prove that similar matrices have the same eigenvalues.