

Quiz

11/29/2006

Math 2270, Fall 2006

Prove the following fact: Consider a symmetric matrix A . If \vec{v}_1 and \vec{v}_2 are eigenvectors of A with distinct eigenvalues λ_1 and λ_2 , then $\vec{v}_1 \cdot \vec{v}_2 = 0$.

Problem: For the matrix $A = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$ find an orthogonal matrix S and a diagonal matrix D such that $S^{-1}AS = D$.