***Solution*** ***Section* 3.1 – Introduction to Eigenvalues**

***Exercise***

For the matrix: 

1. Find the characteristic equation
2. Find the eigenvalues
3. Find the eigenvectors

***Solution***

***Exercise***

For the matrix: 

1. Find the characteristic equation
2. Find the eigenvalues
3. Find the eigenvectors

***Solution***

***Solution Section* 3.2 – Diagonalization**

***Exercise***

Determine whether the matrix is diagonalizable

*d*) 

***Solution***



***Solution Section* 3.4 – Angle and Orthogonality in Inner Product Spaces**

***Exercise***

Find the cosine of the angle between ***u*** and ***v***. 

***Solution***

***Exercise***

Determine whether the given vectors are orthogonal with respect to the Euclidean inner product.



***Solution***

***Solution Section* 3.5 – Gram-Schmidt Process**

***Exercise***

Use the Gram-Schmidt process to find an orthonormal basis for the subspaces of .



***Solution***







.

















































***Solution Section* 3.7 – Orthogonal Diagonalization**

***Exercise***

Find a matrix *P* that orthogonally diagonalizes *A*, and determine 



***Solution***