

Section 3.11. Do the assigned problems in the order indicated. Proceed as follows:

- a. Verify that the given matrix  $A$  is symmetric (Hermitian in #43).
- b. Calculate the eigenvalues and eigenvectors of the given matrix  $A$ .
- c. Find an orthogonal matrix (unitary matrix in #43)  $S$  that diagonalizes the given matrix  $A$ . Show that  $S^{-1}AS$  is the diagonal matrix of eigenvalues.