MATH-332: Linear Algebra Chapter: 5

Eigenvalues and Eigenvectors

Section 5.5: Complex Eigenvalues

pgs. 335 - 342 *July 21, 2009*

Lecture: Complex Eigenvalues

Topics:	Complex Eigenvalues/Eigenvectors Real Matrices w/ complex vectors Complex eigenvalues & Rotations
Problems	Prac: 1 Prob: 3, 5, 9, 11, 13, 23

Section Goals

- Understand how the meaning of complex eigenvalues/eigenvectors in terms of rotations.

Section Objectives

- Provide examples of matrices with complex elements in their spectra and relate these eigenproblems to rotation matrices.
- Prove that real matrices with complex eigenvalues/eigenvectors must possess them in complex conjugate pairs.
- Prove that real symmetric matrices have a purely real spectrum.