

Assignment 11

[2pt] 1. When is your final exam?

[8pt] 2. Let $A = \begin{bmatrix} 2 & 2 & 2 \\ 1 & 1 & -2 \\ -2 & -1 & 2 \end{bmatrix}$.

(a) Determine the eigenvalues and corresponding eigenvectors for A over \mathbb{C} . Then give an invertible matrix P and a diagonal matrix D (both with complex entries) such that $P^{-1}AP = D$. (i.e. Diagonalize A over \mathbb{C} .)

(b) Determine a real canonical form for A and give a change of coordinates matrix Q that brings A into this form.