Math 210 E **Spring 2013**
Homework 8 **Drew Armstrong**

Reading:
Section 6.1

Problems:
Section 6.1: 2, 3, 4, 9, 13, 14, 17

Additional Problems:

A.1. Compute the 2×2 matrix P that **projects** onto the line through $(\cos\theta, \sin\theta)$. Verify that $(\cos\theta, \sin\theta)$ and $(-\sin\theta, \cos\theta)$ are eigenvectors of this matrix. What are the corresponding eigenvalues?

A.2. Considering the matrix P from above, I claim that the matrix $2P - I$ is the **reflection** across the line through $(\cos\theta, \sin\theta)$. (You do not need to show this.) Verify that $2P - I$ has the **same** eigenvectors as P, but **different** eigenvalues. What are the new eigenvalues? Are you surprised?