Complementary Homework III for Linear Algebra II
due **Wednesday, April 20th, 2005**

For each of the following matrices:
- Determine whether eigenvalues are real or complex
- Depending on your answer to the first question, choose a method to compute 15^{th} power of each matrix. Show all your work.

You can use your calculator for this homework assignment (to help with trigonometric functions, square roots and powers of numbers - please, don't plug in the original matrix into your sophisticated calculator and ask it to compute the 15^{th} power).

(1) $A = \begin{pmatrix} 5 & -5 \\ 1 & 1 \end{pmatrix}$

(2) $A = \begin{pmatrix} 4 & -3 \\ 2 & -1 \end{pmatrix}$

(3) $A = \begin{pmatrix} 1 & -4 \\ 4 & 2 \end{pmatrix}$. Here, a calculator might be helpful.

(4) $A = \begin{pmatrix} 1 & 4 \\ 4 & 2 \end{pmatrix}$. This matrix will require a calculator to compute arctan, cos and sin.