Math 196-47, Mr. Church, Homework 11
Due at the beginning of class on Wednesday, May 27.
Please staple your homework.

1. Let

$$A = \begin{bmatrix} 3 & 1 & 0 \\ -1 & 1 & 0 \\ 1 & 1 & 3 \end{bmatrix},$$

$$B = \begin{bmatrix} 5 & 3 \\ 3 & 2 \end{bmatrix},$$

$$C = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix}.$$

For each of these matrices, complete the following.

(a) Find the eigenvalues of the matrix.

(b) For each eigenvalue, find the algebraic multiplicity and the geometric multiplicity.

(c) Is the matrix diagonalizable?

(d) Find the determinant from the eigenvalues and their multiplicity (**not** by direct computation—I already know you can do that).