

Mathematics 1E2 2006–07
HW 11 Due 29/1/07

Name: _____
ID: _____

(1) Find the eigenvalues and corresponding eigenvectors for $\begin{bmatrix} 1 & 3 \\ 3 & 1 \end{bmatrix}$.

(2) Find the eigenvalues of

$$\begin{bmatrix} -10 & 21 & -6 \\ -4 & 9 & -2 \\ 10 & -18 & 7 \end{bmatrix}.$$

(Hint: they are integers, and the constant term in $\det(\lambda I - A)$ is -6).

(3) Find eigenvectors for the above matrix.

(4) Find eigenvalues, **but not** eigenvectors, for the matrix

$$\begin{bmatrix} 1 & 0 & 3 \\ 0 & 2 & 0 \\ 3 & 0 & 1 \end{bmatrix}.$$