MATH 335 Quiz 3 Name:

Show all work. 10 points each. You can check you answers using matlab.

1. Find the characteristic polynomial of $A = \begin{bmatrix} 0 & 4 \\ -1 & 4 \end{bmatrix}$ by hand and use it to find eigenvalues and eigenvectors of the matrix. What are the dimensions of each eigenspace?

2. If the matrix $A = \begin{bmatrix} 2 & -1 \\ 1 & 4 \end{bmatrix}$ is diagonalizeable, diagonalize by hand. It is enough to find D and P but show all work. Verify your result by showing $AP = PD$.