
Show all work. 5 points each.

1. Find the characteristic polynomial of the matrix A and use it to find the eigenvalues of $A = \begin{bmatrix} 2 & 1 \\ -1 & 4 \end{bmatrix}$. Show work but you can check with Matlab.

2. Is the matrix in problem 1. diagonalizeable ? Why or why not. Be specific and show work. Is it invertible?