This is a two-stage quiz. You will receive this back with each question graded pass/fail in our next class meeting. You have until the date specified above to submit corrections for partial credit.

1. (4 points) Consider the matrix

$$
A=\left[\begin{array}{cc}
4 & 2 \\
3 & -1
\end{array}\right]
$$

(i) Find the eigenvalues of $A$.
(ii) Give an eigenvector for each eigenvalue you found in part (i).
2. (6 points) Consider the matrix

$$
A=\left[\begin{array}{cccc}
2 & 0 & -1 & 0 \\
0 & -3 & 0 & 1 \\
0 & 0 & -3 & 0 \\
0 & 0 & 0 & -2
\end{array}\right]
$$

(i) Give the characteristic polynomial of $A$.
(ii) Give the eigenvalues of $A$ along with their multiplicites.
(iii) Find a basis for the eigenspace of the least eigenvalue of $A$.

