Name:

## Linear Algebra II - Quiz 9

All the solutions should be properly justified and explained. Clarity of the presentation will also be rewarded.

The maximal number of points awarded is 10 .

1. Let $A$ be a square matrix. We suppose that $A$ has an eigenvector $\vec{v}$ associated with eigenvalue 3. Is $\vec{v}$ necessarily an eigenvector of the matrix $A^{3}-4 A$ ? If it is the case, give the associated eigenvalue.
2. Find (all) the eigenvectors of $M$ associated with the eigenvalue 2 where

$$
M=\left[\begin{array}{ll}
4 & 1 \\
2 & 3
\end{array}\right]
$$

