

Name _____ Linear Algebra, Quiz 7

1) Is $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$ an eigenvector for $\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$? Justify your answer. (2 points)

2) $\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ has two eigenspaces. Find them. (6 points)

3) Find an eigenvector for the matrix below. (Yes, just one eigenvector, any eigenvector will do! Remember $\vec{0}$ is not an eigenvector, though) (2 points)

$$\begin{bmatrix} 6 & 3 & 0 & 0 & 0 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 2 & 0 & 0 \\ 0 & 0 & 0 & 2 & 0 \\ 0 & 0 & 0 & 0 & 5 \end{bmatrix}$$