CS491/CS691 Quiz 9 Name _____

1. For the following matrix, decide which, if any, of the following vectors are eigenvectors and give the corresponding eigenvalue. (8 points)

$$\begin{bmatrix} 1 & -3 & 3 \\ 3 & -5 & 3 \\ 6 & -6 & 4 \end{bmatrix} \quad \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix} \quad \begin{bmatrix} -1 \\ 0 \\ 2 \end{bmatrix} \quad \begin{bmatrix} -1 \\ 1 \\ 3 \end{bmatrix} \quad \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix} \quad \begin{bmatrix} 3 \\ 2 \\ 1 \end{bmatrix}$$

(1) (2) (3) (4) (5)

2. Given the following eigenvector $v = (3, 4)$ and sample $s = (1, 2)$, project the sample s onto the eigenvector v. (2 points)