Quiz 8, Linear Algebra
Fall 2017, Dr. Adam Graham-Squire

Name: _____

1. (4 points) Suppose the solutions of a homogeneous system of five linear equations in six unknowns are all multiples of one nonzero solution. Will the system necessarily have a solution for every choice of constants on the right sides of the equations? Explain.

2. (4 points) Find the characteristic polynomial and the eigenvalues of $A = \begin{bmatrix} 1 & 5 \\ 4 & 2 \end{bmatrix}$.

3. (2 points) Is $\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ an eigenvector for the matrix $\begin{bmatrix} 2 & 1 \\ 0 & 2 \end{bmatrix}$? Is so, find the corresponding eigenvalue. Show/explain your work.