Math 265 Summer 2018 - Quiz 08

7/17/2018 - 10 Minutes **Name:**

Remember that your work is graded on the quality of your writing and explanation as well as the validity of the mathematics.

(1) (10 Points) Diagonalize the following matrix, if possible.

$$\begin{bmatrix} 5 & -2 \\ 0 & 5 \end{bmatrix}$$

If not, explain why.

(2) (10 Points) Diagonalize the following matrix, if possible.

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

That is, find an invertible matrix P and a diagonal matrix D such that $A = PDP^{-1}$.

[Hint: the characteristic equation of given matrix can be factored: $\det(A - \lambda I) = -(\lambda - 1)(\lambda - 2)^2$]