Name: _____ Sort #: _____

Worksheet 14

Diagonalization MATH 2250, Fall 2018

1. Let $A = PDP^{-1}$ where

$$P = \begin{bmatrix} 2 & -3 \\ -3 & 2 \end{bmatrix}, \quad D = \begin{bmatrix} 1 & 0 \\ 0 & \frac{1}{2} \end{bmatrix}$$

Compute A^4.

2. Diagonalize the matrix

$$A = \begin{bmatrix} 1 & 0 \\ 6 & -1 \end{bmatrix}$$

If it is not possible, explain why.

3. Diagonalize the matrix

$$B = \begin{bmatrix} 4 & 0 & -2 \\ 2 & 5 & 4 \\ 0 & 0 & 5 \end{bmatrix}$$

If it is not possible, explain why.

4. Diagonalize the matrix

$$\begin{bmatrix} 4 & 0 & 0 \\ 1 & 4 & 0 \\ 0 & 0 & 5 \end{bmatrix}$$

If it is not possible, explain why.