DIAGONALIZATION WORKSHEET

OCTOBER 27, 2017

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

   (a) $A = \begin{bmatrix} 0.6 & 0.3 \\ 0.4 & 0.7 \end{bmatrix}$

   (b) $A = \begin{bmatrix} 4 & -1 \\ 1 & 2 \end{bmatrix}$

2. Let $A = \begin{bmatrix} 0.6 & 0.3 \\ 0.4 & 0.7 \end{bmatrix}$ as in 1.(a).

(a) Use the diagonalization found in 1.(a) to find a formula for A^k for any $k \geq 0$.

(b) What happens as $k \to \infty$?