Chapter 4

Math 2890-001
Spring 2018 **Name** _____
Due Apr 02

1. (1 point) Let $A = \begin{pmatrix} 34 & 34 & 8 \\ -1 & -1 & 0 \\ -136 & -136 & -33 \end{pmatrix}$.

   Compute A^8. Show and explain your work.

   HINT: It may help to know that $AP = PD$ where

   $$P = \begin{pmatrix} 1 & 2 & 0 \\ -1 & -1 & -4 \\ 0 & -4 & 17 \end{pmatrix} \quad D = \begin{pmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{pmatrix} \quad P^{-1} = \begin{pmatrix} -33 & -34 & -8 \\ 17 & 17 & 4 \\ 4 & 4 & 1 \end{pmatrix}$$

2. (1 point) Let

$$A = \begin{pmatrix} 0.7 & 0.1 & 0.4 \\ 0.1 & 0.6 & 0.1 \\ 0.2 & 0.3 & 0.5 \end{pmatrix}.$$

Find a steady state probability vector for the stochastic matrix A. Show and expain your work.

Total for assignment: 2 points