

Homework 10

1. Perform the following matrix multiplication:

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

2. Convince yourself that any matrix times any vector is a linear combination of the columns of that matrix.

3. $\mathbf{A} = \begin{bmatrix} 0.8 & 0.2 \\ 0.2 & 0.5 \end{bmatrix}$

What are the eigenvectors and values of $\mathbf{A}$? (You are welcome to check your work in R or Sage, but show how to do this by hand.)