eigenvalues: $\lambda_1 = \frac{1}{2}$, $\lambda_2 = \frac{3}{4}$ (From class)

$$\lambda_1 = \frac{1}{2} : \begin{bmatrix} -\frac{3}{2} - \frac{1}{2} & \frac{3}{2} \\ -3 & \frac{11}{4} - \frac{1}{2} \end{bmatrix} = \begin{bmatrix} -2 & \frac{3}{2} \\ -3 & \frac{9}{4} \end{bmatrix}$$

$$\begin{bmatrix} -2 & \frac{3}{2} \\ -3 & \frac{9}{4} \end{bmatrix} \cdot \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$-2v_1 + \frac{3}{2} v_2 = 0 \qquad v_1 = \frac{3}{4} v_2$$

$$-3v_1 + \frac{9}{4} v_2 = 0$$

$$v_1 = k_1 \begin{bmatrix} 3 \\ 4 \end{bmatrix} \quad * \text{eigenvector 1}$$

$$\lambda_2 = \frac{3}{4} : \begin{bmatrix} -\frac{3}{2} - \frac{3}{4} & \frac{3}{2} \\ -3 & \frac{11}{4} - \frac{3}{4} \end{bmatrix} = \begin{bmatrix} -\frac{9}{4} & \frac{3}{2} \\ -3 & 2 \end{bmatrix}$$

$$\begin{bmatrix} -\frac{9}{4} & \frac{3}{2} \\ -3 & 2 \end{bmatrix} \cdot \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$-\frac{9}{4} v_1 + \frac{3}{2} v_2 = 0$$

$$-3v_1 + 2v_2 = 0 \qquad v_1 = \frac{2}{3} v_2$$

$$v_2 = k_2 \begin{bmatrix} 2 \\ 3 \end{bmatrix} \quad * \text{eigenvector 2}$$