

In order to qualify for full marks, you must show your work and explain your answer!

Find a 2×2 matrix A with eigenvalues $\lambda_1 = 3$ and $\lambda_2 = 4$ with corresponding eigenspaces

$$E_3 = \text{span}\left(\begin{bmatrix} 3 \\ 2 \end{bmatrix}\right) \text{ and } E_4 = \left(\begin{bmatrix} 1 \\ 1 \end{bmatrix}\right).$$