WORKSHEET 11/8/23
MATH 2331, FALL 2023

(1) Can you find an eigenvector for reflection across the line parallel to $\begin{bmatrix}3\\4\end{bmatrix}$? Can you find another? What are the eigenvalues?

(2) Can you find an eigenvector for rotation by an angle θ in $\mathbb{R}^2$? What is the eigenvalue?

(3) What can you say about the eigenvalues of an orthogonal matrix?

(4) Find the eigenvalues of $A = \begin{bmatrix}1 & 2 & 3\\0 & 4 & 5\\0 & 0 & 6\end{bmatrix}$.

(5) Write down the characteristic equation of $A = \begin{bmatrix}a & b\\c & d\end{bmatrix}$. Can you solve it?