Math 300 Section 5.3 Additional Problems

1. For the following matrices, find the eigenvalues and bases of the corresponding eigenspaces. Is the matrix diagionalizable over $\mathbb{R}$? Is the matrix diagionalizable over $\mathbb{C}$? If so, find Q and D such that $A = QDQ^{-1}$ where D is diagional. Don't actually compute any of these products or inverses, just find D and Q.

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