Name:

1. Find matrices C and P such that $A = PCP^{-1}$ and C is of the form $\begin{pmatrix} a & b \\ -b & a \end{pmatrix}$, where $a, b \in \mathbb{R}$.

   $A = \begin{pmatrix} -3 & 2 \\ -4 & 1 \end{pmatrix}$

2. Compute the orthogonal projection of the vector $\begin{pmatrix} 0 \\ 5 \end{pmatrix}$ onto the line between the origin and $\begin{pmatrix} 4 \\ 3 \end{pmatrix}$.