Math 2940, Fall 2012
Additional Homework for Sections 4.7

1) Let \( A = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 1 \\ 0 & 0 & 3 \end{bmatrix} \). Find vectors \( \vec{v}_1, \vec{v}_2, \text{ and } \vec{v}_3 \) such that \( A\vec{v}_k = k\vec{v}_k \). Show the set \( \{\vec{v}_1, \vec{v}_2, \vec{v}_3\} \) is independent. Let \( B \) be this basis and \( C \) the standard basis. Form the matrix \( P \) whose columns are the \( \vec{v}_i \). What matrix is \( P \)? What is \( P^{-1}AP \)?