Choose and complete one of the following problems:

1) Let $\beta_1 = \left\{ \begin{bmatrix} 2 \\ 4 \end{bmatrix}, \begin{bmatrix} 2 \\ 5 \end{bmatrix} \right\}$, $\beta_2 = \left\{ \begin{bmatrix} 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 2 \end{bmatrix} \right\}$. Write the vector $\begin{bmatrix} 1 \\ 3 \end{bmatrix}_{\beta_1}$ in terms of β_2.

2) Diagonalize the matrix $\begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$. Express your answer as an equation involving the matrix and its diagonalization.