1. Suppose that $T \in \mathcal{L}(V)$ is invertible, $\mathcal{B}$ is a basis of $V$, and $[T]_{\mathcal{B}} = \text{diag}(\lambda_1, \ldots, \lambda_n)$. What is $[T^{-1}]_{\mathcal{B}}$?

2. Let $\mathcal{B}_1, \mathcal{B}_2$ be bases for a vector space $V$. Show that $[I]_{\mathcal{B}_1, \mathcal{B}_2}$ is an invertible matrix and find its inverse.