1. (1 point) Let $T_1 : \mathbb{R}^2 \to \mathbb{R}^2$, $T_1(a_1, a_2) = (a_1 + a_2, a_1 - a_2)$. Let $\beta = \{(1, 0), (0, 1)\}$ and $\gamma = \{(1, 2), (1, 1)\}$. Compute $[T]^\gamma_\beta$.

2. (1 point) Let $T_2 : \mathbb{R}^2 \to \mathbb{R}^2$, $T_2(a_1, a_2) = (2a_1 - 4a_2, -a_1 + a_2)$. Let $\beta = \{(1, 2), (-1, 1)\}$ and $\gamma = \{(2, 1), (2, 0)\}$. Compute $[T]^\gamma_\beta$.

3. (1 point) Let $V$ be a vector space with the ordered basis $\beta = \{v_1, \ldots, v_n\}$. Define $v_0 = 0 = v_{n+1}$. Let $T$ be the unique linear transformation with $T(v_j) = 2v_{j-1} - 3v_{j+1}$ for $j = 1, \ldots, n$. Determine $[T]^\beta_\beta$.

4. (2 points) Section 2.2, Problem 13

5. (3 points) Section 2.2, Problem 15

6. (2 points) Section 2.2, Problem 16