

Name:

1. Give the transition matrix from the ordered basis $B = \{(1, 3)^T, (0, 1)^T\}$ of \mathbb{R}^2 to the ordered basis $C = \{(1, 1)^T, (1, -1)^T\}$.

2. Let $T : \mathbb{R}^3 \rightarrow \mathbb{R}^3$ be defined by

$$T(x, y, z) = (z - y, x, 1).$$

Is T a linear transformation? Explain.