QUIZ 9 Math 304-06 Print your name _____
Nov. 13, 2023

No consultation!—that includes no electronics.

The vector space $\mathbb{P}_1$ has a basis $\mathcal{B} = \{x+1, x-1\}$. The linear transformation $T : \mathbb{P}_1 \to \mathbb{P}_1$ is defined by $T(p(x)) = \dfrac{d}{dx}p(x)$.

(1) (5 points) Evaluate $\dfrac{1}{3-4i}$ as a complex number, where $i = \sqrt{-1}$.

(2) (15 points) Find the matrix $[T]_{\mathcal{B}}$ of T with respect to basis $\mathcal{B}$.