

1. Let $f(x) = \cos(x)$. $f: \mathbb{R} \longrightarrow \mathbb{R}$ Let $c = 0$. Produce a Taylor Series , $f_T(x)$, in expanded form (explicitly show the first five non-zero terms).

2. Let $g(x) = \frac{1}{x}$. $g: (0, 2) \longrightarrow \mathbb{R}$ Let $c = 1$. Produce a Taylor Series , $g_T(x)$, in expanded form (explicitly show the first five non-zero terms).

3. Let $k(x) = \arctan(x)$. $k: (-5, 5) \longrightarrow \mathbb{R}$ Let $c = 0$. Produce a Taylor Series , $k_T(x)$, in expanded form (explicitly show the first five non-zero terms).