1. [5] Let \( f(x) \) be \( 2\pi \)-periodic with one period given by \( f(x) = x \) for \( x \in [-\pi, \pi) \). Find the Fourier coefficients, \( a_0, a_n, \) and \( b_n \), for \( f(x) \).
2. Consider the parametric curve given by
   \[ x = 4t - 3 \]
   \[ y = 2 - 3t \]

   (a) Find the arc length for \( t \in [0, 3] \).

   (b) Find \( \frac{dx}{dt} \) at \( t = 5 \).

   (c) Find \( \frac{dy}{dt} \) at \( t = -7 \).

   (d) Find the slope \( \frac{dy}{dx} \) at \( t = 3 \).

   (e) Find the speed \( \frac{ds}{dt} \) at \( t = 2 \).