1 9.3: Arclength

**Goal:** Given a curve, find the length of the curve between two points.

**Informal Derivation of Method:**

**Examples:** Find the length of the curve $y = x^{2/3}$ from $x = 1$ to $x = 8$.

**Method I:**

**Method II:** .
Find the length of the curve parametrized by \( x = \frac{1}{2}t^2 - t, \ y = \frac{4}{3}t^{3/2}, \ t \in [0, 2]. \)

**On Beyond Average:**

Find the length of the curve parametrized by \( x = 1 + e^{-t} \cos t, \ y = e^{-t} \sin t, \ t \in [0, \infty). \)

Find the length of the astroid \( x = \cos^3 \theta, \ y = \sin^3 \theta. \)