Class 12: Arc Length

Calculus II

College of the Atlantic. Jan 30, 2025

1. Use the arc length formula to calculate the arc length of $f(x) = (4/3)x + 2$ from $x = 3$ to $x = 6$. Explain why your answer is comforting. Do this by hand. It's probably easiest if you resist the urge to convert any square roots you might encounter into decimals.

2. Let $f(x) = x^2$. How long is the curve from $x = 0$ to $x = 1$?

3. Let $f(x) = x^3$. How long is the curve from $x = 0$ to $x = 1$?

4. Let $f(x) = \sin(x)$. How long is the curve from $x = 0$ to $x = \pi$?