

Problem 1. Find the length of the curve $y = 2x^{3/2} + 1$ from $x = 0$ to $x = 1$.

Problem 2. For what value of A is $f(x)$ a probability density function?

$$f(x) = \begin{cases} A \cos^2(x), & 0 \leq x \leq \pi \\ 0 & \text{otherwise} \end{cases}$$