Problem Set
Sections 8.1 - 8.2

Arc Length and Surface Area

Problem 1

Find the length of the curve $y = \ln \sqrt{\sec 2x}, \quad 0 \leq x \leq \dfrac{\pi}{6}$.

Problem 2

Find the length of the curve $y = \frac{1}{3}\left(x^2+2\right)^{3/2}$ from $x = 0$ to $x = 3$.

Problem 3

Find the length of the curve $y = \ln x$ from $x = 1$ to $x = e$.

Problem 4

Find the area of the surface generated by revolving the curve of $y = \cosh x, \quad 0 \leq x \leq 1$, about the x-axis.

Problem 5

Find the area of the surface generated by revolving the curve of $y = 2x + 1, \quad 0 \leq x \leq 2$, about the x-axis.