# Problem Set 17
# 8.1 and 8.2: Arc Length and Surface Area

*Please indicate the members who are present. Also indicate the group coordinator.*

| Group Number: | |
|---|---|
| Members: | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## Problem 1

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

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

## Problem 2

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

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