

LAST NAME:

FIRST NAME:

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**MATH 65B - Spring 2018**

Groupwork 6: March 1, 2018

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1. Find the arc length of the curve  $y = \ln(\sec(x))$ , for  $0 \leq x \leq \frac{\pi}{4}$ .

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Please, show all work.

2. Find the surface area of revolution by rotating the function  $y = \sqrt{1 + 4x}$  about the  $x$ -axis for  $1 \leq x \leq 5$ .

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Please, show all work.

- 3.** Find the surface area of revolution by rotating the function  $x = \sqrt{1 - y^2}$  about the  $y$ -axis for  $0 \leq y \leq \frac{1}{2}$ .

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Please, show all work.

4. A spring has natural length 20 cm. Compare the work  $W_1$  done stretching the spring from 20 cm to 30 cm, with the work  $W_2$  done stretching it from 30 cm to 40 cm. How are  $W_1$  and  $W_2$  related?

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Please, show all work.