

Math 262

Quiz 1

Due: 09/09/2009

Name: \_\_\_\_\_

This is a Take-Home Quiz. You may use your book and course notes, and you may consult with other members of the class, but you may not consult with outside tutors (at least not on these specific problems).

1. (5 points) Find the arc length of the curve given by  $y = x^{\frac{2}{3}}$  on  $[0, 4]$ .

2. (5 points) Find the area of the surface generated by rotating the curve  $y = x^3$  between  $x = 0$  and  $x = 2$  about the  $x$ -axis.

**Extra Credit:** Derive a formula for the surface area of a sphere of radius  $r$ . [Give your work on the back of the quiz or attach additional work]