

Math 166 - Section A  
February 1, 2008

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

**Quiz #3a: Sections 5.3 & 5.4**

Show all work in a neat and logical manner in order to get full credit.

10 pts.

1. Set-up the integral to find the length of the curve  $x = \frac{2}{3}t^3$ ,  $y = 12t^2$  on  $0 \leq t \leq 3$ . Simplify your answer, so that the integration will be easy. You do not have to evaluate the integral.

Don't forget the back!  $\Rightarrow$

10 pts.

2. Find the lateral (side) surface area of the cone generated by revolving the line segment  $y = \frac{5}{2}x$ ,  $0 \leq x \leq 4$ , about the x-axis. (Include a graph and round your answer to the nearest tenth.)

10 pts.

3. Use the shell method to find the volume of the solid generated when the region bounded by the given curves is revolved about the line  $x = 2$ .

$$y = 3 - \frac{3}{4}x^2 \quad (x \geq 0), \quad x = 0, \quad y = 0$$

(Include a graph and find an exact answer using  $\pi$ , if needed.)

Points earned: \_\_\_\_\_ out of a possible 30 points