

MthU242  
Northeastern University  
Quiz #4  
20 Minutes

Calculus II  
Professor Gilmore  
Feb. 7, 2008

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

Show All Your Work

- In problem #1, **draw a picture** in both parts.
1. a. Consider the part of the graph of the function  $y = 2x - x^2$  which is above the x axis. Calculate the volume generated by rotating the region enclosed by this curve and the x axis **about the x axis**

- b. Rotate the same region **about the y axis**. Set up an integral to calculate the resulting volume, **BUT DO NOT EVALUATE IT**.

2. a. Calculate the arc length along the graph of the function  $y = \frac{x^2}{2} - \frac{\ln x}{4}$   
from  $x = 1$  to  $x = 2$

- b. Set up, **BUT DO NOT EVALUATE**, an integral to calculate the arc length along the parametric curve  $(x(t), y(t)) = (t^2, \cos t)$  from  $t = 0$  to  $t = \frac{\pi}{2}$ .