

Group Exam 3
--------------

Calculus II  
Professor Johnson  
Fall 2008

Name: \_\_\_\_\_  
Name of group member: \_\_\_\_\_  
Name of group member: \_\_\_\_\_

Problem 1: A water storage tank has the shape of cylinder with diameter 10 ft. The tank is on its side as pictured below. If the water depth is 7 ft, what percentage of the capacity is being used? Round your answer to the nearest tenth. (You may use your calculator to evaluate your answer, but show all your calculus-work in the space provided.)

Group Exam 3
--------------

Calculus II  
Professor Johnson  
Fall 2008

Name: \_\_\_\_\_  
Name of group member: \_\_\_\_\_  
Name of group member: \_\_\_\_\_

Problem 2: Find the area inside the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ .

Hint: Start by setting up an integral for the area of the quarter of the ellipse that is in the first quadrant.

Group Exam 3
--------------

Calculus II  
Professor Johnson  
Fall 2008

Name: \_\_\_\_\_  
Name of group member: \_\_\_\_\_  
Name of group member: \_\_\_\_\_

Problem 3: Find the volume of the solid obtained by rotating the region bounded by  $y = \sin(x)$ ,  $y = 0$ ,  $0 \leq x \leq \pi$  about the line  $x = -1$ .