Worksheet #24 Answers, November 20, 2015  
Math 221 Lecture EL1

**Instructions.** Put your first and last name at the top of your paper. Everyone is to do their own worksheet but only one from each group is graded with the score shared. Be sure to show your work and explain your reasoning. All worksheets from each group will be collected. **This worksheet has three pages, and three problems.**

1. Find the volume of the solid obtained by rotating the region bounded by the curves \( y = \sqrt{25 - x^2}, \ y = 0, \ x = 2, \ \text{and} \ x = 4 \) about the \( x \)-axis. Sketch the region, the solid, and a typical disk or washer.

Answer: \( \frac{94}{3} \pi \).

2. Find the volume of the solid obtained by rotating the region bounded by the curves \( y = e^{-x}, \ y = 1, \ \text{and} \ x = 2 \) about the line \( y = 2 \). Sketch the region, the solid, and a typical disk or washer.

Answer: \( \pi \left( \frac{5}{2} + 4e^{-2} - \frac{1}{2} e^{-4} \right) \)

3. A **frustum** is the portion of a solid (normally a cone or pyramid) that lies between two parallel planes cutting it. Find the volume of a frustum of a pyramid (shown in the picture below) with square base of side \( b \), square top of side \( a \), and height \( h \). (Hint: look at Example 8 on page 437)

Answer: You’ll have to find out later, because this a Problem on Webassign #23!