Reading Assignment for Section 6.6

MATH 131: Calculus II, Sections 2 and 3
Fall Semester 2015

Follow the general guidelines for the Reading Assignment (the salmon colored handout). Be sure to include and label all four standard parts 1,2,3,4 of the Reading Assignment in what you hand in. Be sure to **staple** together pages if you have more than one, and include your **name** at the top of at least the first page. Neatness is expected!!!

Due: by the beginning of class on Wednesday, October 14th

Read:

Section 6.6, pages 451-457: Surface Area! Do the Quick Checks along the way! Check your answers to them at the end of the Exercises for Section 6.6!

Notes:

We learned how to find volumes of solids in Sections 6.3 and 6.4, but what if we don't want to know the volume of the solid, but rather its surface area? Think about the difference between figuring out how much paint you need to fill a container with figuring out how much paint you would need to paint the outside of the container. In this section we use the information we derived in Section 6.5 about finding arc length to find surface area. What is a frustum? How can we use frustums to find surface area? We will learn all this and more in Section 6.6! Guess what? We **STILL** start the derivation of the formulas for these applications by partitioning our interval into subintervals and by looking at smaller pieces that we sum together to estimate the whole! Be sure to read the first paragraph of the section to learn a little about applications and more!

Remember that your answers should include complete sentences for every question. Be sure to address all parts of each question.

Reading Questions for part (1):

a) What is a frustum and how is it helpful in finding the surface area of a surface of revolution? I am not looking for formulas here, but rather a description of how and why we would want to use frustums to derive our formula for surface area. Draw a diagram to accompany your explanation.

b) Describe in words what the formula for surface area is. That is, in words, what is in the integrand of the integral?

c) We talked about how evaluating the integrals we set up for arc length can be challenging. (a) What was the challenge and what was one approach for solving it? (b) Now looking at the surface area integrals, will these be easier or harder to evaluate? Explain. What new strategies might be used to solve these which were not available to us in solving the arc length integrals? Why could they work here but not with the arc length integrals?

Remember parts 2-4 on the salmon handout! **Reread the directions for these parts to be sure that you are answering the questions.** If you have lost your salmon handout, there is a link on our website to the Homework Guidelines.