Reading Assignment for Section 6.5

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 appreciated!!!

Due: by the beginning of class on Monday, October 5th

Read:

Section 6.5, pages 445-449: Arc Length! Do the Quick Checks along the way! Check your answers to them at the end of the Exercises for Section 6.5!

Notes:

How do you determine the distance between two points? What if you could not go "as the crow flies", but rather your path between the points was curved? In other words, how can we find the length of a curve, or the arc length of a segment of a function? Again, we **still** approach deriving a formula for Arc Length with essentially the same initial steps! Now *your roommate* should almost be able to say them in her/his/hir sleep!

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) To derive a formula for the area between curves we used estimating rectangles. In a similar fashion, what do we use to derive a formula for arc length?

b) How is the Mean Value Theorem used in the derivation of the formula for arc length? Why is it helpful? Explain briefly, making it clear what the Mean Value Theorem says within your explanation.

c) In Example 3 on page 448, the authors want to confirm the formula for the circumference of a circle. (Isn't this neat?!!!) They do this by finding the arc length of one-eighth of the circle. Why don't they find the arc length of half of the circle? Wouldn't it be easier? Explain briefly.

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.