

# Reading Assignment for Section 5.1

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 the page. Neatness is appreciated!!!

**Due:** by 2:15pm in my office on Tuesday, September 1st

Read:

Section 5.1, pages 333-342: Approximating Areas Under Curves

Notes:

As we mentioned briefly today in class, the geometric idea behind integration is area. We looked at the area beneath a constant function, which was just the area of a rectangle. But what if we want the area under a function that is not constant? What if the function is a curve? How do we find the area under that? In this section we will look at estimating the area under a curve using geometric shapes whose areas are easy to find.

**Remember that your answers should include complete sentences for every question.**

Reading Questions for part (1), Response:

- a) Write a complete explanation, **in your own words**, drawing at least one picture, of how the area under a curve can be approximated using rectangles. (The response to this question will be slightly longer than most reading questions.)
- b) What is a Riemann sum?
- c) Consider  $f(x) = x^2$  on the interval  $[0, 2]$ . If you approximate the area under  $f$  on this interval with a right Riemann sum, will it be an over approximation or an under approximation? Draw a picture and use it to help you explain why. Do you see what property of  $f$  tells you what kind of approximation you will have?

Remember parts 2-4 on the salmon handout!