

Reading Assignment for Section 5.1

MATH 131: Calculus II, Section 1
Spring Semester 2014

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 Thursday, January 23rd

Read:

Section 5.1, pages 306-315: 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):

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!