Math 026L Spring 2000
Paragraph Assignment, Week 6
Riemann Sums

This assignment is due Thursday, February 24, 2000, at the beginning of lab.

In this week's write-up, you will describe how to approximate the area under a graph using a Riemann sum. Begin by explaining what a Riemann sum is, how a Riemann sum is constructed, and how we can use a Riemann sum to approximate the area under a graph.

Now suppose that a positive function $f(x)$ is decreasing on an interval $[a, b]$. How does the left hand Riemann sum compare to the true area under $f(x)$ between a and b? How does the right hand Riemann sum compare to the true area? How do these approximations compare to the true area as the number of subintervals used in the Riemann sums increases?

Various Instructions:

1. You must write your explanation without using any pictures or notation EXCEPT for $f(x)$, x, a, b, and $[a, b]$. In particular, you must NOT use Σ.

2. Do not choose a particular function to investigate. Instead, write the paragraph for general $f(x)$ and $[a, b]$.

3. The mathematical concepts involved in this paragraph are very simple. Do NOT try to make your paragraph sound fancy; write it so that it is as clear and simple as possible.

4. There is no need to write an introduction or a conclusion to the problem. Do NOT pad your paragraph with fluff like, "In conclusion, the mathematical concept of a Riemann sum is very important in everyday life and easy to calculate."

5. **The paragraph must be jointly written by all members of your lab group.** "Switching off" who writes the weekly paragraphs is considered academic dishonesty and will be punished as such. Your lab group should meet to discuss the problem, write a draft, pick apart each sentence, rewrite as necessary, and proofread until the paragraph is to everyone's liking and understanding.