Math 170-006 **Final and Chapter 5 Review** **Dec. 9, 2008**

Final Exam

General Points:

- Date and time: Monday December 15, 2008 1:00pm-3:00pm
- Exam topics: Chapters 1–4, and sections 5.1–5.6. The majority of the problems will come from the later chapters (3–5).
- There is just one fundamental way to prepare for the final exam: understand the material!
- To review of the exam, I suggest studying all the midterm exams, the inclass exercises, the homework, and the review sheets from each of the midterms. Besides the midterm exams, all of this information can be found on the course web page.
- You will be allowed to prepare and use both sides of an 8.5 inch by 11 inch piece of paper with your notes during the exam. Besides this paper, **all books, notes, and electronic devices must be out of sight.**
- You will answer questions on the exam itself. All you need to bring is a writing utensil.
- When you receive the exam, **relax** and proceed deliberately. If you don't know how to do a problem, skip it and return to it later. Accuracy is paramount, speed is useless!
- The exam is not a contest to see who can finish the fastest. If you finish early, be content that you now have time to double and triple check your answers.

Chapter 5

Topics: Section 5.1–5.6

5.1–5.2: For these two sections, you only need to know the concept of the Riemann sum. I will not test you the lower, upper, or midpoint sum rules, or sigma notation.

5.3: Notation of the definite integral; properties of the definite integral (Table 5.3); formula for the average or mean value of a function $f(x)$.
Problems: 9–14, 68

5.4: Mean value theorem for definite integrals; the Fundamental Theorem of Calculus part 1 and 2; total area.
Problems: 1–50, 57, 60, 61–64

5.5: Substitution rule ("u-substitution") for indefinite integrals.
Problems: 1–54, 57, 58, 61, 63, 65, 66

5.6: Substitution rule for definite integrals; definite integrals of symmetric functions; formula for the area of a region bounded by two curves–both when y is a function of x and x is a function of y.
Problems: 1–92