Math 1230 Midterm I Info Sheet

The purpose of this handout is to help you study by listing the concepts, definitions, and results you will need to know for the midterm.

Midterm Information. Here's the time and location:

(1) **Time:** 8:00AM-9:20AM on Friday, February 9, 2007
(2) **Place:** UC 2011 (Upper lecture theatre)

Note that we will start early and we will be in another classroom. You will **not** be allowed to bring in any notes, use the text book, or use a calculator. **Bring your STUDENT ID**.

Material Covered. The exam will cover all the material discussed in class about Sections 5.4-5.9, 6.1-6.2, and 7.1-7.3 of the textbook.

I will expect you to **memorize all the basic integration rules on the table on page 364**. For other integration rules, e.g., those involving hyperbolic trig. functions, I will give you a formula sheet, if you need it.

I have given a breakdown of what you will need to know from each section.

Section 5.4. Know the Fundamental Theorem of Calculus (Theorems 5.9 and 5.11). Know how to use this theorem to calculate the area under a curve. Also know about the average value of function and be able to do a problems like Example 4.

Section 5.5. Know how to integrate via substitution. Be able to do problems like we did in class and in the homework.

Section 5.6. There are no questions on the midterm from this section.

Section 5.7. Know how to do integration problems like those in this section. Make sure you can do problems like we did in class and in the homework from this section.

Section 5.8. Know how to integrate functions that involve the inverse trig. functions. As mentioned above, I expect you to know all the basic integrals listed on page 364.

Section 5.9. Know the definition of $\sinh x$ and $\cosh x$ and be able to do problems like those of Exercise 10 of 5.9 (a homework question). As well, I may ask you to find the derivative or integrate a function using $\sinh x$ or $\cosh x$. I will provide the formulas in this case. However, you should know how to use the formulas.

Section 6.1. Know what a differential equation is, how to verify a solution (like Example 1) and how to find a particular solution. As well, you should know how to use a slope field (like Example 4). You won't have to make a slope field. Also, you don't need to know the material on Euler's method.

Section 6.2. Be able to use the separation of variables method to find a solution to a differential equation (like Example 1). Also be able to do problems involving exponential growth and decay, and Newton's law of cooling.

Section 7.1. Be able to find the area of a region between two curves. Be able to do problems like those in this section

Section 7.2. Know the formulas for the Disk Method and Washer Method. Be able to do problems like those in class and in the homework. You don't need to know the material at the end of page 461 on "Solids with Known Cross Sections".

Section 7.3. Know the formulas for the shell methods and know how to use them to compute the volume of a solid. I expect you to be able to do problems like those in class and in the homework.