First Midterm on Sections 4.10, 5.2-5.5, 6.1-6.2 in the Stewart book, at the usual quiz section time in the usual quiz section room on Thursday, **October 18**.

Midterm rules. You may use one 8×11.5 sheet of *handwritten* notes; one side only! You may also use your "simple" scientific calculator. No other materials and tools, such as books, printed notes or graphing calculators, are allowed on the exam. You will be asked to turn off and put away your cell phone.

Know your QUIZ SECTION NUMBER and your TA NAME: you will need to write them on the exam cover sheet. You do not need to bring a bluebook or even paper to write on. There will be room on the test paper to do your work, and you may ask for extra blank paper if needed.

There may be different versions of the test. This means you shouldn't panic if you accidentally see your neighbor's answer and it's different from yours, or if you discuss a problem after the test with other students, and their answers are different from yours.

Test preparation. Before taking the exam, you should complete and fully understand all homework problems from the first three homework assignments (weeks 1-3). You should work through and understand all examples from class, worksheets 1-3, quizzes 1 and 2 (solutions are posted on class webpage), and practice problems for Midterm I also posted on class webpage. Once you feel comfortable with all that material try some of the sample midterms. Four old exams are linked to the class webpage, many more can be found at the unified MATH 125 website. By the time of the actual midterm you should be able to do any of the problems from any of the old midterms. When is it a good time to start studying? NOW!

Review/Help sessions. There is no Quiz on Tuesday, October 16th: your TA will conduct a review session for the Midterm. Two of our TAs, Sam and Chris, have generously agreed to hold a special HELP SESSION on Wednesday, October 17th, 4-6 pm. Location is Smith 102.

Taking the test.

• READ INSTRUCTIONS TO THE PROBLEMS CAREFULLY.

• Lay your work out in a logical order. Use English as well as symbols as necessary to make your reasoning clear to the grader.

• If you need more space than is available on the page with the problem, the back of the *previous* page is the best place to continue, because then you (and the grader) can see all your work at once, without flipping a page over. In any case give clear instructions on where to find the rest of your work and write the problem number at the top of the new page of work.

• Crossing out the work you don't want us to grade is always a better solution than erasing it. It's quicker, and sometimes your new reasoning is easier to follow if we can glance at what you tried first.

• If there is a bonus problem do not attempt it until you have completed the rest of the test.

Finally, a few remarks on academic honesty. It should go without saying that everything you write on your test paper should be your own work, and not borrowed from your neighbor's paper. If there is evidence that convinces me you are claiming credit for work that is not your own work during the test period, I will give you a zero on the test and turn the evidence over to the Dean's Committee on Academic Conduct.

Midterm 1 review topics.

§4.10 Antiderivatives:

- What they are, how to find them (review differentiation formulas and Chain Rule).
- Most general antiderivative versus specific antiderivative subject to initial condition(s).
- Rectilinear motion and Falling body problems.

§5.1 Areas under curves:

- Geometrically and via Riemann Sums.
- Approximations L_n, R_n, M_n.

§5.2 The definite integral:

- Understand *Riemann sums* and definition of definite integrals in terms of them.
- Distance when velocity is positive.

§5.3 FTC I and II:

- Know and UNDERSTAND what each of the two theorems is saying.
- Understand the precise relationship between integrals and derivatives.
- Know how to do FTC I and II problems, including those involving the chain rule or switching of bounds.

§5.4 Indefinite integrals and net change:

- Learn your integral table! (p406)
- Lots of practice (examples from the text, or among 5.4 problems 5–40, or sample midterms).
- Understand relation between the net change and the definite integral of the rate of change & specifically *distance versus displacement*.

§5.5 Substitution:

- Understand the method and when it is useful.
- Do lots of practice problems: examples in book, from class, homework, practice problems, extra practice worksheet from Thursday, Oct. 11, and exercises at the end of section (among problems 7–66).
- Definite integrals of odd and even functions (using symmetry to evaluate integrals).

§6.1 Areas between curves:

- How to compute (understand formulas on pages 438 and 440).

- Look over book examples and homework problems.

§6.2 Volumes:

- Understand how to apply the definition of volume in terms of integral of the area.
- Understand Disks and Washers: general formula

$$V = \int_a^b \pi R^2 \, dx \text{ (Disks)} \quad V = \int_a^b \pi R^2 - \pi r^2 \, dx \text{ (Washers)} .$$

- How to slice and in which variable to integrate, depending on the situation.
- How to compute R (and r if necessary) in terms of the variable of integration.

This is a copy of the cover sheet for the midterm. The number of possible points for each problem will appear on the actual exam.

Math 125C **First Midterm** **October 18, 2007**

Your Name

Your Signature

TA's Name #

Quiz Section

- This exam is closed book. You may use one $8\frac{1}{2} \times 11$ sheet of notes (one-sided).
- Graphing calculators are not allowed. Do not share notes.
- In order to receive credit, you must show your work. Do not do computations in your head. Instead, write them out on the exam paper.
- Simplify your answers as much as possible but leave them in exact form (e.g. $\pi\sqrt{2} + \frac{1}{2}$). Do NOT give decimal approximations.
- Place a box around $\boxed{\text{your final answer}}$ to each question.
- If you need more room, use the backs of the pages and indicate to the grader where to find your work.
- Raise your hand if you have a question or need more paper. Good luck!

Problem	Total Points	Score
1		
2		
3		
4		
5		
Total		

Don't open the test until everyone has a copy and the start of the test is announced.