MATH 121 Section 02
Homework 7

   Below is a list of selected problems from Stewart's <u>Calculus</u>. You will have until Friday April 11 to finish the problem set. The first problems are suggested exercises and you do not need to turn them in. The latter set you should write up carefully and neatly as they will be graded. It is in your best interest to work all of the problems. All problems from the homework are fair game on the exams! You are encouraged to work in groups, but you must write up your own solutions. I will be available during office hours for help.

1   Suggested Problems

§4.7) 1-29 odd, 33, 35, 37

§5.1) 1-5 odd, 15, 17-21 odd

§5.2) 1-11 odd, 17, 19, 21, 23, 25

2   Required Problems

1) A cone-shaped paper drinking cup is to be made to hold 27 cm^3 of water. Find the height and radius of the cup that will use the smallest amount of paper.

2) Determine a region whose area is equal to the limit

$$\lim_{n\to\infty} \sum_{i=1}^{n} \frac{2}{n} \left(5 + \frac{2i}{n} \right)^{10}.$$

3) Use the form of the definition of the integral given in Theorem 4 (page 302) to evaluate the integral

$$\int_0^2 (2 - x^2) \, dx.$$

4) Prove that

$$\int_a^b x \, dx = \frac{b^2 - a^2}{2}.$$