MA-161 (F,07)
Directions for Test 4 plus
Assignment for Unit 5

GENERAL DIRECTIONS for Test 4:

When you've finished problems 1 and 2, turn in your papers and ask for the second part of the test.

Do your work and give your answers on the paper I've provided. Don't skimp on paper! (You may do the drawing for Problems 5 and 6 on the test paper.) **Answer all problems in sentences, even those requiring a numerical result**. Please remember that a sentence could be as simple as $\int 3x^2\, dx = x^3 + C$. **Show your work and explain what you are doing**. (Your explanations will be graded. "Answers" without explanations are not acceptable.)

Note about EXTRA CREDIT: As you know by now, EC points are not nearly as important in determining your test grade as are the points on the required problems. You should therefore always spend time making sure you have the required problems as correct as you can make them. On this test, it is possible to earn up to 140 EC points. Because of this, if you think you have not done well on some of the required problems, it would be worth while to use the full two hours to get some of the EC problems done.

Due Wed, 11/28

In this final unit, we will look briefly at some of the applications of the integral. The basic idea is that finding a definite integral is a way of computing an "infinite sum." All of the applications we'll look at therefore involve setting up an infinite sum. The process of actually computing the infinite sum is done either by the FTC (Part 2), assuming you can find an interderivative of the function in question, or by approximating the sum by computing Riemann sums via your NUMINT program or by a graph or table.

Read Section 6.1 through Example 2 on p.439. Then do Ex. 6.1: 1, 2, 5, 6.

Due Thurs, 11/29

Read whatever you feel is necessary in Section 6.1 after the presentation in class. I expect you to be able to find the area between two curves in the manner I'll show you in class on Wednesday. This will involve: (1) Drawing the graphs and determining points of intersection. (2) Drawing appropriate rectangles with heights f(x) – g(x) [or f(y) – g(y)] and widths dx [or dy]. (3) Showing a Úing up of their areas over appropriate intervals.
(4) Finding the area using either (a) your ability to find antiderivatives and FTC, or (b) the NUMINT program..

Ex. 6.1: 1, 3, some of 5 - 25 odds, 27, 39, 44, 45 (You may submit 46 for EC -- but be sure you draw a figure to accompany your solutions.)

Due Fri, 11/30

Read about volumes of solids of revolution (Examples 1 - 6 on pps 441 - 422). Again, I'll expect you to do the four steps above to find volumes.

Ex. 6.2: Some of the odds 1 - 17, 19 - 30 (For many of these, be able to set up the integral that gives the volume of the solid. Evaluate a few of the integrals in the odd problems, just to make sure you're doing it right.)

Due Mon, 12/3

Ex. 6.2: 31, 33, 35 (For these three, do evaluate, either by the FTC or by your program.), 37, 45, 47, 48, 49, 65 (You may submit 64 and/or 66 for EC. In 66, assume the ball is steel.)

Read pps 446 - 448 about volumes by cross-sectional slicing.

Prob. Set 6.2: 54 - 59 In 56 and 57, the base is the region trapped between $y = x^2$ and $y = 1$. For all of these, draw pictures!

Due Tues, 12/4

Do the volume problem I'll hand out in class on Monday.

There may be one additional application of integration.   If that's so, there will be additional problems assigned.

Wed, 12/5

Test on Applications of Integration.