Mini-Test 1 Review
Dr. Graham-Squire, Spring 2012

●The mini-test will cover sections 5.1 through 5.5.

●To study, you should look over your notes, rework HW problems, quizzes, and problems from the notes, as well as work out the practice problems given for each section. The Review Questions at the end of Chapter 5 will also be good practice (in particular: T/F on page 424- numbers 1, 3, 5-8, 11; Exercises on page 425- numbers 1-5, 7-21).

●Calculators <u>are</u> allowed on this test, but for certain questions you will not be allowed to use a calculator.

●Some Practice Problems to work on:

1. Suppose a particle on a line has velocity $v(t) = t(2 - t)$, for t-values between 0 and 4.
   (a) Explain in words the difference between the *displacement* of the particle and the *total distance traveled* from $t = 0$ to $t = 4$. (b) Now calculate each of them using integrals.

2. (a) Using <u>midpoints</u> as your evaluation points, find an approximation for $\int_3^5 (2x - 7)dx$ using 4 rectangles.

   (b) Use the Fundamental Theorem of Calculus to evaluate $\int_3^5 (2x - 7)dx$. How close is your answer to 2(a)? Explain.

3. Evaluate the indefinite integral $\int [x(x+2)^2 + \sec^2 x]dx$.

4. Find $h'(x)$ if $h(x) = \int_0^{e^{2x}} \sin^3 x \, dx$.

5. Evaluate the integrals.

(a) $\int_0^{\pi^2} \frac{\sin \sqrt{x}}{\sqrt{x}} \, dx$

(b) $\int x^2 \sqrt[3]{1-x} \, dx$