Calculus 2 - Test 2 Review
Dr. Graham-Squire, Spring 2020

•The test will cover sections 5.7-5.10 and 6.1-6.2.

•To study, you should look over your notes, labs, 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 Chapters 5 and 6 will also be good practice (For Chapter 5: page 424 #11-15, 17-23, pages 425-426 #22-28, 30-35, 47, 48, 49(b), 55-60, 61 (for number 61, do a comparison by removing the +2 from the bottom), For Chapter 6: pages 488-489 #1-18, 20, 22, 23, 25, 28,29) (Note: some of those for Chapter 6 might not be correct, I need to double check)

•Calculators and/or Maple <u>will</u> be needed on this test, but for certain questions you will not be allowed to use them.

•The old Test 2s on my website can also be useful, but be forewarned that those tests covered slightly more material (they went up through section 6.6) so there may be a few questions on there that will not apply to our test..

•Some practice problems to work on:

1. Evaluate the integrals. Be sure to use correct notation where necessary and to show all of your work.

    (a) $\int_{1}^{\sqrt{2}} \dfrac{x^5}{\sqrt{4-x^2}}\, dx$ (Round to nearest .001)

    (b) $\int_{0}^{2} \dfrac{3}{\sqrt{2-x}}\, dx$

2. (a) Use the Midpoint Rule with six subintervals (M_6) to approximate $\int_{0}^{3} \dfrac{dt}{1+t^2+t^4}$.

    (b) Use the error estimate for the midpoint rule to estimate how much error you might have in your answer from (a). You will need to use Maple for that.

    (c) Use Maple to calculate the actual integral. How far off from the correct value is your answer from (a)? Is it less than the error from (b)?

3. Sketch the region enclosed by $y = x^3 - 9x$ and $y = -5x$ and then find its area. (Note: the answer is <u>not</u> zero).

4. Consider the region W bounded by $y = \frac{1}{x}$, $y = 0$, $x = 1$ and $x = 3$. Find the volume of the solid obtained by rotating W about (a) the line $y = -3$ and (b) the y-axis.