

Exam 4 Review Sheet Calc 1 4/19/2006

Format: 10 problems with generally ascending difficulty, plus an extra credit opportunity.

Prerequisites: The exam is comprehensive over everything since kindergarten. Although there won't be entire questions devoted to material from before chapter 5, this material will be necessary for stages of many problems on the exam. Antiderivatives, of course, are central to the current material.

Content: The exam will cover §5.1 through §6.1, excluding §5.6.

- ▶ Be able to relate integrals, especially their units and signs, to a variety of contexts.
- ▶ Understand how definite integrals do and don't represent area.
- ▶ Understand integrals from graphic, numeric, and algebraic standpoints.
- ▶ Be able to approximate integrals with left-hand or right-hand sums, or to give upper or lower estimates of their values, and understand the differences.
- ▶ Know the antiderivatives of polynomials, simple rational functions, trig functions, and exponential functions.
- ▶ Understand and be able to use the connections between differentiation and antidifferentiation, especially including both parts of the Fundamental Theorem of Calculus.
- ▶ Be able to set up integrals representing areas between curves.
- ▶ Be able to perform basic integrations by u -substitution.

Grading: Each problem is worth 10 points.

- ▶ 10 points indicates complete, accurate, and adequately justified completion of a problem.
- ▶ Isolated mistakes within an otherwise valid solution generally cost about a third of the points possible (3 to 4 points out of 10).
- ▶ Even if you can't complete a problem, make an effort to indicate to me how much you know so I can gauge credit accordingly.
- ▶ Pay attention to what's asked for: You don't need to waste time working out answers if you're only asked to set them up. Providing a decimal approximation when an exact value is requested, or vice versa, costs you points. Pay attention to the difference.

Resources: You are welcome to use a calculator of your choice. Scratch paper will be provided.