

**Exam 1 Review Sheet      Calc 1      6/21/2005**

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

Prerequisites: The exam is comprehensive over everything since kindergarten. In particular, although the exam is primarily over chapter 2, all of the material reviewed in chapter 1 is important for some stages of larger problems. Linear, exponential, and sinusoidal functions in particular will be likely to show up.

Content: The exam will cover §1.1 through §2.9, with the emphasis on chapter 2.

- ▶ Understand transformations of functions from graphic, numeric, and algebraic standpoints.
- ▶ Understand how rates of change pertain to a large variety of situations.
- ▶ Understand limits from graphic, numeric, and algebraic standpoints.
- ▶ Be able to use the limit rules carefully to algebraically compute limits.
- ▶ Know the definition of the derivative (both at a point and as a function).
- ▶ Be able to use the definition of the derivative to find derivatives of basic functions including polynomials, simple rational functions, and square roots.
- ▶ Understand derivatives from graphic, numeric, and algebraic standpoints.
- ▶ Be able to relate derivatives, especially their units and signs, to a variety of contexts.
- ▶ Understand continuity and the connections between continuity and differentiability.

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 or 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, and scratch paper will be provided.

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