

Exam 1 Review Sheet Calc 2 9/14/2005

Format: The exam will consist of 10 problems worth 10 points each with generally ascending difficulty, plus an extra credit opportunity.

Prerequisites: The exam is comprehensive over everything since kindergarten. In particular, though, you should know the derivatives of common functions and basic rules for differentiation.

Content: The exam will cover §5.1 through §6.5.

- ▶ Understand what antiderivatives are graphically, numerically, and algebraically.
- ▶ Understand and be able to use both parts of the Fundamental Theorem of Calculus.
- ▶ Be able to perform integration by u-substitution, and know when to do so.
- ▶ Area – Understand how and why we slice regions to compute their areas, and be good at doing so.
- ▶ Volume – Understand how and why we slice regions to compute their volumes, and be good at doing so. Be able to distinguish situations suitable for washers from situations suitable for shells.
- ▶ Work – Be good at setting up spring problems and pump problems.
- ▶ Average Value – Be good at setting up average value problems.

Grading: As always, 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 integrals 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.