

Exam 3 Review Sheet Calc 2 3/29/2005

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

Prerequisites: As always, the exam is comprehensive over everything since kindergarten. In particular, though, you should be prepared to differentiate functions including trig functions and exponentials, using the chain/product/quotient rules where appropriate. Improper integrals suitable for use in the Integral test are also important.

Content: The exam will cover §9.1 through §10.4.

- ▶ Sequences – Know what they are, how to find their limits, and the important Fact about their convergence.
- ▶ Series – Know what they are, what it means for one to converge or diverge, and what partial sums are.
- ▶ Geometric Series – Be able to recognize them and find their sums when they converge.
- ▶ The Integral Test – Know how to use it and when.
- ▶ The Comparison Test – Know how to use it and when, and know some useful series to compare with. Understand its limitations.
- ▶ The Alternating Series Test – Know how to use it and when. Understand what needs to be checked and how to check it.
- ▶ The Ratio Test – Know how to use it and when. Understand its limitations.
- ▶ Radius and Interval of Convergence – Know what they are and how to find them. Understand what they tell you about use of a polynomial approximation.
- ▶ Taylor Polynomials – Know both the hard and easy ways to obtain them. Know the common ones, particularly $\sin x$, $\cos x$, and e^x . Know good ways to use them.
- ▶ Know the distinction between the degree of a polynomial, the number of terms in a polynomial, and the number of non-zero terms in a polynomial.

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 will be provided a fresh copy of the reference sheet with details of the various convergence tests.

Final Note: Yes, the exam is still Friday even if Flunk Day is Wednesday or Thursday.