

I will let you fill out a 5" \times 7" notecard (front and back) with any formulas you want.

Approximate Sections Covered:

- 5.4, 5.6
- 6.1, part of 6.2
- 7.2, 7.4
- 8.1 – 8.4
- 10.1, 10.2
- 11.1 – 11.7

Some review problems/suggestions...

- Know how to set up left, right, midpoint, and trapezoid rule approximations.
- Know how to use the error bounds for left, right, midpoint, and trapezoid rules.
- Know how to compare left, right, midpoint, and trapezoid rule approximations depending on concavity and whether the function is increasing or decreasing.
Try 5.6 #17, #27, #29 and 6.1 #3, #25 and a sampling of 6.1 #28 – #46
- Know how to set up and compute volumes of revolution and volumes of pyramids and cones.
Try 7.2 #9 (combines 7.2 with approximations), #25, and a sampling of #11 – #18 and #37 – #40
- Know how to solve IVP (initial value problems) from section 7.4.
Try a few from 7.4 #17 – #22
- **KNOW HOW TO INTEGRATE** – You need to know integration by substitution, integration by parts, partial fraction decomposition, and various trigonometric substitution tricks.
Pages 484 and 485 problems #1 – #72 are good practice. Pick at random.
- Know how to deal with definite integrals too.
Try 5.5 #71 and #73, 8.1 #15 and #19, 8.3 #35 and #37
- Re-read 9.1 and 9.2 to make sure you understand where Taylor's formulas come from. This should help with understanding section 11.7.
- Know how to deal with improper integrals (both limits at infinity and discontinuities). Spring 2009's Test #3 Extra Credit problems are great review.
Try also 10.1 #33 – #36, #41, and #45
- Know how to detect convergence and divergence of improper integrals using comparisons. Again the Test #3 Extra Credit problems are great review.
Try also 10.2 #27 – #30

- You should know how to find limits and simplify expressions involving factorials. If limits are giving you trouble, look over sections 2.3, 4.2, and 11.1.
- Know about convergence and divergence of p -integrals and p -series (i.e. $\int 1/x^p$, $\sum 1/k^p$).
- Know the formula for geometric series (and remember it only holds for “ $|r| < 1$ ”).
- Review telescoping series. Try 11.2 #23, #24, and #41
- Know the convergence and divergence tests: n^{th} -term (divergence) test, comparison tests, integral test, (generalized) ratio test, alternating series test. In addition remember that absolute convergence implies convergence (but not vice-versa).
Try a sampling from page 602 #9 – #34
- Know how what the integral test says about bounds for a series sum and partial sum error.
Try 11.3 #45 and #48
- Know what a power series is and how to find its radius and interval of convergence.
Try a sampling from page 603 #37 – #48
- About the nature of convergence and divergence of power series as studied in problems 11.5 #27 – #32.
- Know how to get “new” power series representations from “old” ones.
Try 11.6 #5 – #11, #17, and #20
- Know how to recognize a function from a power series representation.
Try 11.6 #51 – #54
- Know the formula for the Taylor (and MacLaurin) series of a function. Know how to find the first few terms of such a series from the definition and know how to interpret coefficients of series expansions.
Try 11.7 #2a, #3 – #5, and #11a,b.
- Review the previous tests and quizzes! Try extra suggested homework coming from things that give you trouble. Review your notes and examples from class.