I will let you fill out a 5" × 7" notecard (front and back) with any formulas you want.
    Approximate Sections Covered:

- 5.4, 5.6, 5.7

- 6.1, part of 6.2

- 7.1, 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 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 interpret sums as integrals (so you can find the value of the sums).
  Try 5.7 #25, #41

- Know how to compute arc length.
  Try 7.1 #39, #43, and compute the arc length of $y = mx + b$ for $x_1 \leq x \leq x_2$.

- 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). Our 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 convegence 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.