

Final Review
Calculus II

May 2026
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The final covers all the material from the semester, weighted more heavily on items not tested previously, §9.8 – 9.10. Look at home work, quizzes, earlier exams, and class examples as you study. The review sheet about sequences and series for Exam 3 is still relevant to your study for the final. I also made a review sheet about power series and Taylor polynomials, which you can find on both D2L and the weekly planner.

Chapter 5-6 Applications of integrals: Area between curves (make sure to check where curves might cross), Integral of cross-sectional area gives volume, volumes of revolution by the washer method or shell method. Arc length and surface area of revolution, work problem (very likely, but no questions about springs or chain problems). Center of mass of a plate (no wires on the final) and Pappus' theorem.

Chapter 8 Integration technique: u -substitutions, integration by parts, trig integrals, trig substitutions, partial fractions, L'Hospital's rule (including use of logarithms for certain indeterminate forms), improper integrals with an infinite endpoint.

Chapter 9 Sequences and series: sequences and convergence, squeeze theorem, bounded and monotone sequences, basic series via partial sums, telescoping series, geometric series, the n th term test, the integral test, p -series, LCT and DCT, AST, absolute and conditional convergence, Ratio test and Root test. Power series $f(x) = \sum a_k(x - c)^k$, finding interval and radius of convergence, derivatives and integrals of power series. Taylor polynomials, estimates with the Taylor polynomial, bounding the error using Taylor's remainder formula, Taylor series, computing Taylor series from definition $\sum_{k=0}^{\infty} \frac{f^{(k)}(c)}{k!} (x - c)^k$, computing Taylor series by operations. To find Taylor series by operations, make sure you **KNOW** the Taylor series for e^x , $\sin x$, $\cos x$ and the geometric series $\frac{1}{1-x} = \sum x^k$. Applications of infinite series like (a) finding exact values of integrals in terms of series, (b) finding $f^{(k)}(c)$ from the series, (c) find limits by using series.