

Review

Ch 6 Differentiation

§6.1 Derivative (Chain rule, Inverse function)

§6.2 Mean Value Thm (Rolle's Thm, 1st derivative test for Extrema)

§6.3 L'Hospital's Rules

§6.4 Taylor's Thm (derivative form of remainder, relative extrema, convex function, Newton's method)

Ch 7 Riemann Integral

§7.1 Riemann integral (partition, tagged partition, Riemann sum, Riemann integrable, boundedness thm)

§7.2 Riemann integrable functions (Cauchy Criterion, Squeeze Thm, "classes" of Riemann integrable functions, additivity thm)

(Midterm up to here)

§7.3 The Fundamental Thm (1st form $\int_a^b f = F(b) - F(a)$, 2nd form $\frac{d}{dx} \int_a^x f = f(x)$; substitution Thm, Lebesgue's Integrability Criterion (pf omitted), Integration by Parts, Taylor's Thm with integral form remainder)

§7.4 The Darboux Integral (Upper & lower sums,
upper & lower integrals, integrability criterion,
equivalence to Riemann integral)

(§7.5 Omitted)

Ch 8 Sequences of Functions

§8.1 Pointwise & Uniform Convergence (uniform norm,
Cauchy Criterion)

§8.2 Interchange of Limits (limit & continuity,
limit & derivatives, limit & integral, Dini's Theorem)

§8.3 Exponential & Logarithmic Functions (Definitions &
basic properties)

§8.4 Trigonometric Functions (Definitions & basic properties)

Ch 9 Infinite Series

§9.1 Absolute Convergence (conditional convergence, grouping,
rearrangement)

§9.2 Tests for Absolute Convergence (Comparison Test,
Root Test, Ratio Test, and their limit version,
Integral Test, Raabe's Test)

§ 9.3 Tests for Nonabsolute Convergence (alternating series, Abel's Test, Dirichlet Test)

§ 9.4 Series of Functions (pointwise & uniform convergence, Cauchy Criterion for Uniform convergence, M-test, Power Series: radius of convergence, uniform convergence when restricted closed & bdd subinterval, continuity, differentiation & integration term-by-term)
(End)

Final exam: covers all material including those in lectures, tutorials, & homework, with emphasis on those material after the mid-term (ie. § 7.3 - § 9.4)