:5 CALCULUS I Fall 1996

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:xt: Thomas & Finney, Calculus, 9th ed. Quite satisfactory. This is the
.rst year we've used it, so we should stick with it for a while.

ıapter 1 Limits and Continuity (4 classes)
 1 Rates of change and limits
 2 Rules for finding limits
 4 Extensions of the limit concept
 5 Continuity
 6 Tangent lines

ıapter 2 Derivatives (6 classes)
 1 The derivative of a function
 2 Differentiation rules
 3 Rates of change
 4 Derivatives of trigonometric functions
 5 The chain rule
 6 Implicit differentiation and rational exponents
 7 Related rates of change

ıapter 3 Applications of Derivatives (8 classes)
 1 Extreme values of functions
 2 The mean value theorem
 3 The first derivative test for local extreme values
 4 Graphing with y' and y''
 5 Limits as x -> infinity, asymptotes, and dominant terms
 6 Optimization
 7 Linearization and differentials
 8 Newton's method

ıapter 4 Integration (9 classes)
 1 Indefinite integrals
 2 Differential equations, initial value problems, and mathematical modeling
 3 Integration by substitution -- running the chain rule backwards
 4 Estimating with finite sums
 5 Riemann sums and definite integrals
 6 Properties, areas and the mean value theorem
 7 The fundamental theorem
 8 Substitution in definite integrals
 9 Numerical integration

ıapter 5 Applications of Integrals (10 classes)
 1 Areas between curves
 2 Finding volumes by slicing
 3 Volumes of solids of revolution -- disks and washers
 4 Cylindrical shells
 5 Lengths of plane curves
 6 Areas of surfaces of revolution

7 Moments and centers of mass
8 Work