

Chapter 13: Exponential and Logarithmic Functions

Chapter 13 Review Problems: # (1, 5, 8, 9, 11, 14, 21, 30, 33, 35, 39, 43)

Section 13.1: Exponential Functions

- Definition of Exponential Functions
- Laws of Exponents
- Graphs of Exponential Functions
- Properties of Exponential Functions
- The natural base: “e”
- Compound Interest Formulas

Section 13.2: Logarithmic Functions

- Definition of Logarithmic Functions
- Basic Computations
- Laws of Logarithms
- Graphs of Logarithmic Functions
- Properties of Logarithmic Functions
- \log (base 10), and the natural logarithm “ln”

Section 13.3: Differentiation of Exponential Functions

- The Derivative of the Exponential Function
- The Chain Rule for Exponentials
- Applications (tangent lines, increasing/decreasing, concavity, absolute extrema)

Section 13.4: Differentiation of Logarithmic Functions

- The Derivative of the Natural Logarithm Function
- The Chain Rule for Logarithmic Functions
- Logarithmic Differentiation
- Applications (tangent lines, increasing/decreasing, concavity, absolute extrema)

Chapter 14: Integration

Chapter 14 Review Problems: # (1, 5, 9, 12, 21, 23, 33, 35, 39, 43, 45, 49, 50)

Section 14.1: Antiderivatives and the Rules of Integration

- Definition of an Antiderivative
- Indefinite Integrals
- The Basic Integration Rules (see integration handout)
- Initial Value Problems

Section 14.3 and 14.4: The Definite Integral and the Fundamental Theorem of Calculus

- Approximating area using rectangles
- Riemann sums, and the definition of the definite integral as a limit of Riemann sums
- The Statement of the FTC
- Finding the Area Under a Curve using a definite integral
- Applications using definite integrals

Section 14.5: Evaluating Definite Integrals

- Properties of Definite Integrals
- Finding the Average Value of a Function on an Interval

Section 14.6: The Area Between Two Curves

- The Basic Formula
- Single Regions
- Enclosed Regions