

CALCULUS 1

Contents

1. FUNCTIONS AND LIMITS

- 1.1 Four Ways to Represent a Function
- 1.2 Mathematical Models
- 1.3 New Functions from Old Functions
- 1.4 The tangent and Velocity Problems
- 1.5 The Limit of a Function
- 1.6 Calculating Limits Using Limit Laws
- 1.7 The Precise Definition of a Limit
- 1.8 Continuity

2. DERIVATIVES

- 2.1 Derivatives and Rates of Change
- 2.2 The Derivative as a Function
- 2.3 Differentiation Formulas
- 2.4 Derivatives of Trigonometric Functions
- 2.5 The Chain Rule
- 2.6 Implicit Differentiation
- 2.7 Rates of Change in the Natural and Social Sciences
- 2.8 Related Rates
- 2.9 Linear Approximations and Differentials

CALCULUS 1

3. APPLICATIONS OF DIFFERENTIATION

- 3.1 Maximum and Minimum Values
- 3.2 Mean Value Theorem
- 3.3 What Derivative Tell us about the Shpe of a Graph
- 3.4 Limits at Infinity
- 3.5 Summary of Curve Sketching
- 3.6 Graphing with Calculus and Technology
- 3.7 Optimization Problems
- 3.8 Newton's Method
- 3.9 Antiderivatives

4. INTEGRALS

- 4.1 The Area and Distance Problem
- 4.2 The Definite Integral
- 4.3 The Fundamental Theorem of Calculus
- 4.4 Indefinite Integrals and the Net Change Theorem
- 4.5 The Substitution Rule