1. FUNCTIONS, GRAPHS, AND LIMITS.
The Cartesian Plane and the Distance Formula. Graphs of Equations. Lines in the Plane and Slope. Functions. Limits. Continuity.
2. DIFFERENTIATION.
The Derivative and the Slope of a Graph. Some Rules for Differentiation. Rates of Change: Velocity and Marginals. The Product and Quotient Rules. The Chain Rule.
Higher-Order Derivatives. Implicit Differentiation. Related Rates.
3. APPLICATIONS OF THE DERIVATIVE.
Increasing and Decreasing Functions. Extrema and the First-Derivative Test. Concavity and the Second-Derivative Test. Optimization Problems. Business and Economics Applications. Asymptotes. Curve Sketching: A Summary. Differentials and Marginal Analysis.
4. EXPONENTIAL AND LOGARITHMIC FUNCTIONS.
Exponential Functions. Natural Exponential Functions. Derivatives of Exponential Functions. Logarithmic Functions. Derivatives of Logarithmic Functions. Exponential Growth and Decay.
5. INTEGRATION AND ITS APPLICATIONS.
Antiderivatives and Indefinite Integrals. Integration by Substitution and the General Power Rule. Exponential and Logarithmic Integrals. Area and the Fundamental Theorem of Calculus. The Area of a Region Bounded by Two Graphs. The Definite Integral as the Limit of a Sum.
6. TECHNIQUES OF INTEGRATION.
Integration by Parts and Present Value. Integration Tables. Numerical Integration. Improper Integrals.
7. FUNCTIONS OF SEVERAL VARIABLES.
The Three-Dimensional Coordinate System. Surfaces in Space. Functions of Several Variables. Partial Derivatives. Extrema of Functions of Two Variables. Lagrange Multipliers. Least Squares Regression Analysis. Double Integrals and Area in the Plane.
Applications of Double Integrals.