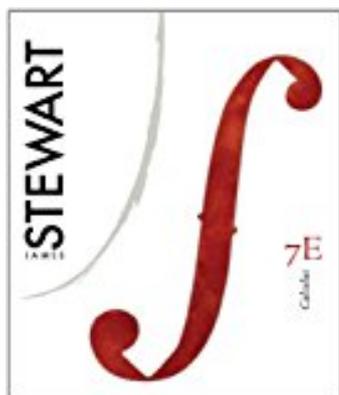


[PDF] Calculus

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Description:

About This Edition

James Stewart's calculus texts are widely renowned for their mathematical precision and accuracy, clarity of exposition, and outstanding examples and problem sets. Millions of students worldwide have explored calculus through Stewart's trademark style, while instructors have turned to his approach time and time again. In the Seventh Edition of *Calculus*, Stewart continues to set the standard for the course while adding carefully revised content. The patient explanations, superb exercises, focus on problem solving, and carefully graded problem sets that have made Stewart's texts best sellers continue to provide a strong foundation for the Seventh Edition. From the most

unprepared student to the most mathematically gifted, Stewart's writing and presentation serve to enhance understanding and build confidence.

New Features

- **Revised:** For this edition, chapters 1 and 2 have been combined--and some material has been moved to an appendix--to streamline the presentation of these early topics.
- **Revised:** Throughout the text, the author has revised the narrative as necessary to improve clarity and aid in student comprehension.
- **New:** New examples, margin notes, applications, and projects have been added.
- **New:** This edition has been updated with approximately 25% more exercises than the previous edition, giving students more opportunities to practice concepts they have learned.
- **New:** "PS" icons denoting problem-solving margin notes are aimed at increasing instructors' awareness of this important aspect of Stewart's approach.
- **Updated:** Tools for Enriching Calculus--a free, online, interactive resource that allows Calculus students to work with animations that deepen their understanding of key concepts by helping them visualize the concepts they are learning--has been updated with new problems and a new Flash design that is more visually appealing and engaging to students.
- **New:** Collections of more challenging exercises called "Problems Plus" have been added to the end of every chapter. These sections reinforce concepts by requiring students to apply techniques from more than one chapter of the text, and by patiently showing them how to approach a challenging problem.

Explore this title's supplements:

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with Calculus and Calculators. Optimization Problems. Applied Project: The Shape of a Can. Newton's Method. Antiderivatives. Review. Problems Plus. 4. INTEGRALS. Areas and Distances. The Definite Integral. Discovery Project: Area Functions. The Fundamental Theorem of Calculus. Indefinite Integrals and the Net Change Theorem. Writing Project: Newton, Leibniz, and the Invention of Calculus. The Substitution Rule. Review. Problems Plus. 5. APPLICATIONS OF INTEGRATION. Areas Between Curves. Applied Project: The Gini Index. Volume. Volumes by Cylindrical Shells. Work. Average Value of a Function. Review. Problems Plus. 6. INVERSE FUNCTIONS: EXPONENTIAL, LOGARITHMIC, AND INVERSE TRIGONOMETRIC FUNCTIONS. Inverse Functions. Instructors may cover either Sections 6.2-6.4 or Sections 6.2*-6.4*. See the Preface. Exponential Functions and Their Derivatives. Logarithmic Functions. Derivatives of Logarithmic Functions. The Natural Logarithmic Function. The Natural Exponential Function. General Logarithmic and Exponential Functions. Exponential Growth and Decay. Inverse Trigonometric Functions. Applied Project: Where to Sit at the Movies. Hyperbolic Functions. Indeterminate Forms and l'Hospital's Rule. Writing Project: The Origins of l'Hospital's Rule. Review. Problems Plus. 7. TECHNIQUES OF INTEGRATION. Integration by Parts. Trigonometric Integrals. Trigonometric Substitution. Integration of Rational Functions by Partial Fractions. Strategy for Integration. Applied Project: Calculus and Baseball. Integration Using Tables and Computer Algebra Systems. Discovery Project: Patterns in Integrals. Approximate Integration. Improper Integrals. Review. Problems Plus. 8. FURTHER APPLICATIONS OF INTEGRATION. Arc Length. Discovery Project: Arc Length Contest. Area of a Surface of Revolution. Discovery Project: Rotating on a Slant. Applications to Physics and Engineering. Discovery Project: Complementary Coffee Cups. Applications to Economics and Biology. Probability. Review. Problems Plus. 9. DIFFERENTIAL EQUATIONS. Modeling with Differential Equations. Direction Fields and Euler's Method. Separable Equations. Applied Project: How Fast Does a Tank Drain? Applied Project: Which is Faster, Going Up or Coming Down? Models for Population Growth. Linear Equations. Predator-Prey Systems. Review. Problems Plus. 10. PARAMETRIC EQUATIONS AND POLAR COORDINATES. Curves Defined by Parametric Equations. Laboratory Project: Families of Hypocycloids. Calculus with Parametric Curves. Laboratory Project: Bezier Curves. Polar Coordinates. Laboratory Project: Families of Polar Curves. Areas and Lengths in Polar Coordinates. Conic Sections. Conic Sections in Polar Coordinates. Review. Problems Plus. 11. INFINITE SEQUENCES AND SERIES. Sequences. Laboratory Project: Logistic Sequences. Series. The Integral Test and Estimates of Sums. The Comparison Tests. Alternating Series. Absolute Convergence and the Ratio and Root Tests. Strategy for Testing Series. Power Series. Representations of Functions as Power Series. Taylor and Maclaurin Series. Laboratory Project: An Elusive Limit. Writing Project: How Newton Discovered the Binomial Series. Applications of Taylor Polynomials. Applied Project: Radiation from the Stars. Review. Problems Plus. 12. VECTORS AND THE GEOMETRY OF SPACE. Three-Dimensional Coordinate Systems. Vectors. The Dot Product. The Cross Product. Discovery Project: The Geometry of a Tetrahedron. Equations of Lines and Planes. Cylinders and Quadric Surfaces. Review. Problems Plus. 13. VECTOR FUNCTIONS. Vector Functions and Space Curves. Derivatives and Integrals of Vector Functions. Arc Length and Curvature. Motion in Space: Velocity and Acceleration. Applied Project: Kepler's Laws. Review. Problems Plus. 14. PARTIAL DERIVATIVES. Functions of Several Variables. Limits and Continuity. Partial Derivatives. Tangent Planes and Linear Approximation. The Chain Rule. Directional Derivatives and the Gradient Vector. Maximum and Minimum Values. Applied Project: Designing a Dumpster. Discovery Project: Quadratic Approximations and Critical Points. Lagrange Multipliers. Applied Project: Rocket Science. Applied Project: Hydro-Turbine Optimization. Review. Problems Plus. 15. MULTIPLE INTEGRALS. Double Integrals over Rectangles. Iterated Integrals. Double Integrals over General Regions. Double Integrals in Polar Coordinates. Applications of Double Integrals. Triple Integrals. Discovery Project: Volumes of Hyperspheres. Triple Integrals in Cylindrical Coordinates. Discovery Project: The Intersection of Three Cylinders. Triple Integrals in Spherical Coordinates. Applied Project: Roller Derby. Change of Variables in Multiple Integrals. Review. Problems Plus. 16. VECTOR CALCULUS. Vector Fields. Line Integrals.

The Fundamental Theorem for Line Integrals. Green's Theorem. Curl and Divergence. Parametric Surfaces and Their Areas. Surface Integrals. Stokes' Theorem. Writing Project: Three Men and Two Theorems. The Divergence Theorem. Summary. Review. Problems Plus. 17. SECOND-ORDER DIFFERENTIAL EQUATIONS. Second-Order Linear Equations. Nonhomogeneous Linear Equations. Applications of Second-Order Differential Equations. Series Solutions. Review. Problems Plus. APPENDIXES. A. Intervals, Inequalities, and Absolute Values. B. Coordinate Geometry and Lines. C. Graphs of Second-Degree Equations. D. Trigonometry. E. Sigma Notation. F. Proofs of Theorems. G. Graphing Calculators and Computers . H. Complex Numbers. I. Answers to Odd-Numbered Exercises. --This text refers to an alternate edition.

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