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Nota di contenuto	Cover; Table of Contents; Title Page; Copyright; Dedication; Preface; Chapter 1: The Complex Numbers; 1.1 Why?; 1.2 The Algebra of Complex Numbers; 1.3 The Geometry of the Complex Plane; 1.4 The Topology of the Complex Plane; 1.5 The Extended Complex Plane; 1.6 Complex Sequences; 1.7 Complex Series; Chapter 2: Complex Functions and Mappings; 2.1 Continuous Functions; 2.2 Uniform Convergence; 2.3 Power Series; 2.4 Elementary Functions and Euler's Formula; 2.5 Continuous Functions as Mappings; 2.6 Linear Fractional Transformations; 2.7 Derivatives; 2.8 The Calculus of Real-Variable Functions 2.9 Contour Integrals Chapter 3: Analytic Functions; 3.1 The Principle of Analyticity; 3.2 Differentiable Functions are Analytic; 3.3 Consequences of Goursat's Theorem; 3.4 The Zeros of Analytic Functions; 3.5 The Open Mapping Theorem and Maximum Principle; 3.6 The Cauchy-Riemann Equations; 3.7 Conformal Mapping and Local Univalence; Chapter 4: Cauchy's Integral Theory; 4.1 The Index of a Closed Contour; 4.2 The Cauchy Integral Formula; 4.3 Cauchy's Theorem; Chapter 5: The Residue Theorem; 5.1 Laurent Series; 5.2 Classification of Singularities; 5.3 Residues; 5.4 Evaluation of Real

Integrals

5.5 The Laplace Transform Chapter 6: Harmonic Functions and Fourier Series; 6.1 Harmonic Functions; 6.2 The Poisson Integral Formula; 6.3 Further Connections to Analytic Functions; 6.4 Fourier Series; Epilogue; Local Uniform Convergence; Harnack's Theorem; Results for Simply Connected Domains; The Riemann Mapping Theorem; Appendix A: Sets and Functions; Sets and Elements; Functions; Appendix B: Topics from Advanced Calculus; The Supremum and Infimum; Uniform Continuity; The Cauchy Product; Leibniz's Rule; References; Index; End User License Agreement

Sommario/riassunto

A thorough introduction to the theory of complex functions emphasizing the beauty, power, and counterintuitive nature of the subject. Written with a reader-friendly approach, *Complex Analysis: A Modern First Course in Function Theory* features a self-contained, concise development of the fundamental principles of complex analysis. After laying groundwork on complex numbers and the calculus and geometric mapping properties of functions of a complex variable, the author uses power series as a unifying theme to define and study the many rich and occasionally surprising properties of analytic functions.
