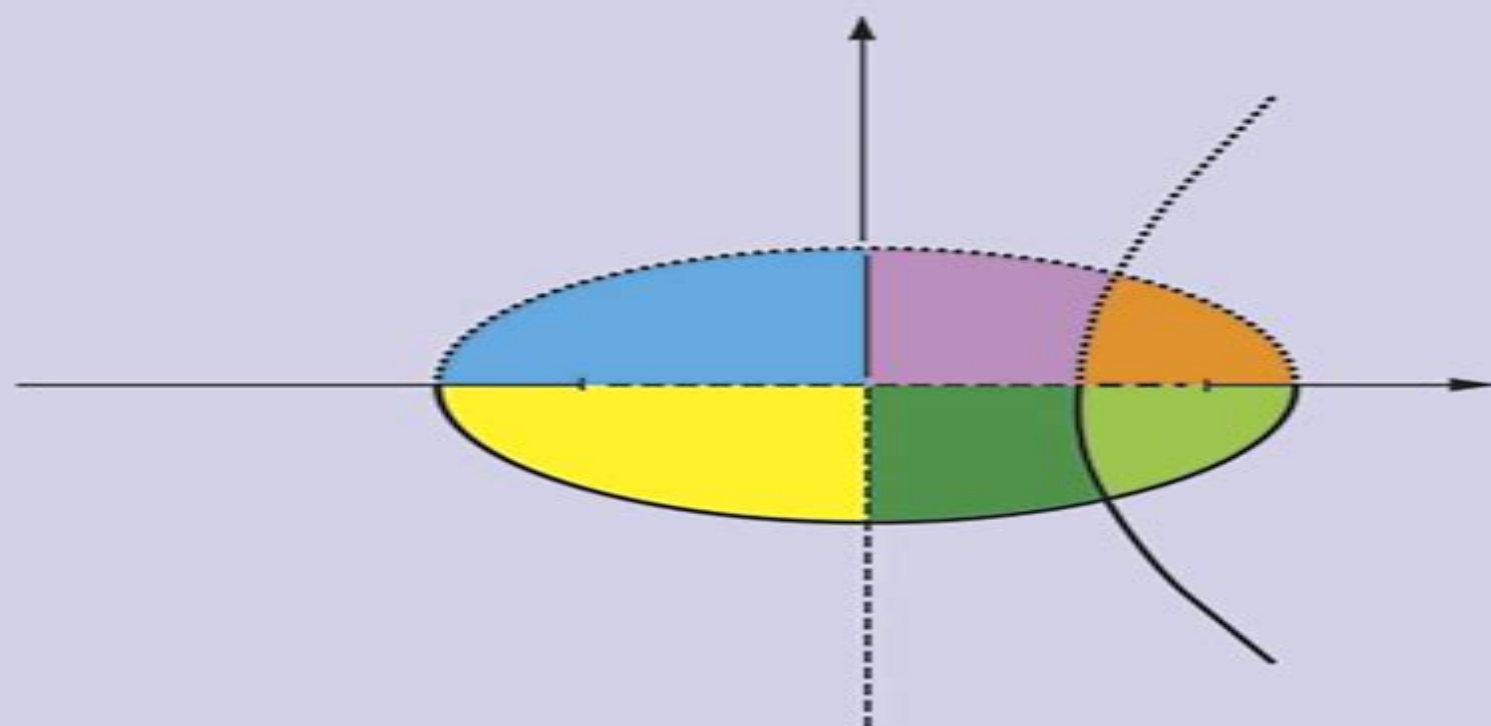


# ELEMENTARY THEORY OF ANALYTIC FUNCTIONS OF ONE OR SEVERAL COMPLEX VARIABLES



HENRI CARTAN

# Elementary Complex Variables

**Frank T. Birtel**



## Elementary Complex Variables:

*Elementary Theory of Analytic Functions of One or Several Complex Variables* Henri Cartan, 2013-04-22 Basic treatment includes existence theorem for solutions of differential systems where data is analytic holomorphic functions Cauchy's integral Taylor and Laurent expansions more Exercises 1973 edition

*Complex Variables I Essentials* Alan D. Solomon, 2013-01-01 REA's Essentials provide quick and easy access to critical information in a variety of different fields ranging from the most basic to the most advanced As its name implies these concise comprehensive study guides summarize the essentials of the field covered Essentials are helpful when preparing for exams doing homework and will remain a lasting reference source for students teachers and professionals Complex Variables I includes functions of a complex variable elementary complex functions integrals of complex functions in the complex plane sequences and series and poles and residues

*A Course in Complex Analysis* Wolfgang Fischer, Ingo Lieb, 2011-10-21 This carefully written textbook is an introduction to the beautiful concepts and results of complex analysis It is intended for international bachelor and master programmes in Germany and throughout Europe in the Anglo American system of university education the content corresponds to a beginning graduate course The book presents the fundamental results and methods of complex analysis and applies them to a study of elementary and non elementary functions elliptic functions Gamma and Zeta function including a proof of the prime number theorem and a new feature in this context to exhibiting basic facts in the theory of several complex variables Part of the book is a translation of the authors German text *Einführung in die komplexe Analysis* some material was added from the by now almost classical text *Funktionentheorie* written by the authors and a few paragraphs were newly written for special use in a master's programme

**Elementary Complex Variables** W. Allen Smith, 1974-01-01

*Elementary Theory of Analytic Functions of One Or Several Complex Variables* Henri Cartan, 1995

*Elementary Complex Analysis* Taha Sochi, 2022-08-16 This book is about complex analysis which is a vital and fascinating branch of mathematics that has many applications in pure and applied mathematics as well as science and engineering The book is basically a collection of solved problems with a rather modest theoretical background presented in the main text and hence it is largely based on the method of learning by example and practice The book can be used as a text or as a reference for an introductory course on this subject as part of an undergraduate curriculum in physics or engineering or applied mathematics The book can also be used as a source of supplementary pedagogical materials used in tutorial sessions associated with such a course

*Elementary Complex Variables from a Several Variable Viewpoint* Frank T. Birtel, 1972

*Complex Variables* Mark J. Ablowitz, A. S. Fokas, 2003 Complex variables provide powerful methods for attacking many difficult problems and it is the aim of this book to provide a thorough grounding in these methods and their application This new edition has been improved throughout and is ideal for use in undergraduate and introductory graduate courses in complex variables

*Complex Variables and Their Applications* Anthony D. Osborne, 1999 An understanding of functions of a complex variable

together with the importance of their applications form an essential part of the study of mathematics. Complex Variables and their Applications assumes as little background knowledge of the reader as is practically possible, a sound knowledge of calculus and basic real analysis being the only essential pre-requisites. With an emphasis on clear and careful explanation, the book covers all the essential topics covered in a first course on Complex Variables, such as differentiation, integration and applications, Laurent series, residue theory and applications, and elementary conformal mappings. The reader is also introduced to the Schwarz Christoffel transformation, Dirichlet problems, harmonic functions, analytic continuation, infinite products, asymptotic series, and elliptic functions. Applications of complex variable theory to linear ordinary differential equations and integral transforms are also included. Complex Variables and their Applications is an ideal textbook and resource for second and final year students of mathematics, engineering and physics.

*A Basic Course in Complex Variables* David C. Kay, 2014-09-02. The calculus of real numbers can be extended to complex numbers where the definitions and techniques one learns in calculus carry over to complex variables. David C. Kay, who has written several books geared for college students, explains this development in his new book. A short review of basic concepts from real variable calculus appears with each new topic. Differentiation and integration in complex variables is clearly explained with numerical examples. Other topics include infinite series of complex variables, uniform convergence, the Taylor and Laurent series, and methods for evaluating difficult integrals. Charts, tables, and drawings throughout the book make even tough concepts easy to understand, and problems have been carefully crafted to cover the main concepts while maintaining your interest. Whether you're an educator seeking to provide an additional resource for your students or a student seeking a self-help guide to understand complex variables, the development in this book is a refreshing treatment that can be a stand-alone tutorial or companion guide to another textbook.

The Essentials of Complex Variables Alan D. Solomon, Research and Education Association, 1989. Includes functions of a complex variable, elementary complex functions, integrals of complex functions in the complex plane, sequences and series, and poles and residues.

**COMPLEX VARIABLES** KASANA, H.S., 2005-01-01. The second edition of this comprehensive and accessible text continues to offer students a challenging and enjoyable study of complex variables that is infused with perfect balanced coverage of mathematical theory and applied topics. The author explains fundamental concepts and techniques with precision and introduces the students to complex variable theory through conceptual development of analysis that enables them to develop a thorough understanding of the topics discussed. Geometric interpretation of the results wherever necessary has been inducted for making the analysis more accessible. The level of the text assumes that the reader is acquainted with elementary real analysis. Beginning with the revision of the algebra of complex variables, the book moves on to deal with analytic functions, elementary functions, complex integration, sequences, series, and infinite products, series expansions, singularities, and residues. The application-oriented chapters on sums and integrals, conformal mappings, Laplace transform, and some special topics provide a practical use perspective.

Enriched with many numerical examples and exercises designed to test the student's comprehension of the topics covered this book is written for a one semester course in complex variables for students in the science and engineering disciplines

*Complex Analysis* Rubí E. Rodríguez, Irwin Kra, Jane P. Gilman, 2012-11-28 This book is intended for a graduate course in complex analysis where the main focus is the theory of complex valued functions of a single complex variable This theory is a prerequisite for the study of many areas of mathematics including the theory of several finitely and infinitely many complex variables hyperbolic geometry two and three manifolds and number theory Complex analysis has connections and applications to many other subjects in mathematics and to other sciences Thus this material will also be of interest to computer scientists physicists and engineers The book covers most if not all of the material contained in Lipman Bers's courses on first year complex analysis In addition topics of current interest such as zeros of holomorphic functions and the connection between hyperbolic geometry and complex analysis are explored In addition to many new exercises this second edition introduces a variety of new and interesting topics New features include a section on Bers's theorem on isomorphisms between rings of holomorphic functions on plane domains necessary and sufficient conditions for the existence of a bounded analytic function on the disc with prescribed zeros sections on subharmonic functions and Perron's principle and a section on the ring of holomorphic functions on a plane domain There are three new appendices the first is a contribution by Ranjan Roy on the history of complex analysis the second contains background material on exterior differential calculus and the third appendix includes an alternate approach to the Cauchy theory

*Basic Complex Analysis* Barry Simon, 2015-11-02 A Comprehensive Course in Analysis by Poincaré Prize winner Barry Simon is a five volume set that can serve as a graduate level analysis textbook with a lot of additional bonus information including hundreds of problems and numerous notes that extend the text and provide important historical background Depth and breadth of exposition make this set a valuable reference source for almost all areas of classical analysis Part 2A is devoted to basic complex analysis It interweaves three analytic threads associated with Cauchy Riemann and Weierstrass respectively Cauchy's view focuses on the differential and integral calculus of functions of a complex variable with the key topics being the Cauchy integral formula and contour integration For Riemann the geometry of the complex plane is central with key topics being fractional linear transformations and conformal mapping For Weierstrass the power series is king with key topics being spaces of analytic functions the product formulas of Weierstrass and Hadamard and the Weierstrass theory of elliptic functions Subjects in this volume that are often missing in other texts include the Cauchy integral theorem when the contour is the boundary of a Jordan region continued fractions two proofs of the big Picard theorem the uniformization theorem Ahlfors's function the sheaf of analytic germs and Jacobi as well as Weierstrass elliptic functions

*Holomorphic Functions and Integral Representations in Several Complex Variables* R. Michael Range, 2013-03-09 The subject of this book is Complex Analysis in Several Variables This text begins at an elementary level with standard local results followed by a thorough discussion of the various fundamental

concepts of complex convexity related to the remarkable extension properties of holomorphic functions in more than one variable. It then continues with a comprehensive introduction to integral representations and concludes with complete proofs of substantial global results on domains of holomorphy and on strictly pseudoconvex domains in  $\mathbb{C}^n$  including for example Carathéodory's famous Mapping Theorem. The most important new feature of this book is the systematic inclusion of many of the developments of the last 20 years which centered around integral representations and estimates for the Cauchy-Riemann equations. In particular, integral representations are the principal tool used to develop the global theory in contrast to many earlier books on the subject which involved methods from commutative algebra and sheaf theory and/or partial differential equations. I believe that this approach offers several advantages: 1. it uses the several variable version of tools familiar to the analyst in one complex variable and therefore helps to bridge the often perceived gap between complex analysis in one and in several variables; 2. it leads quite directly to deep global results without introducing a lot of new machinery; and 3. concrete integral representations lend themselves to estimations, therefore opening the door to applications not accessible by the earlier methods.

**Complex Analysis 2** Eberhard Freitag, 2011-06-10. The book contains a complete self-contained introduction to highlights of classical complex analysis. New proofs and some new results are included. All needed notions are developed within the book with the exception of some basic facts which can be found in the first volume. There is no comparable treatment in the literature. *An introduction to the theory of complex variables*, *Elementary Classical*

*Analysis* Jerrold E. Marsden, Michael J. Hoffman, 1993-03-15. Designed for courses in advanced calculus and introductory real analysis. *Elementary Classical Analysis* strikes a careful balance between pure and applied mathematics with an emphasis on specific techniques important to classical analysis without vector calculus or complex analysis. Intended for students of engineering and physical science as well as of pure mathematics. *Complex Analysis* Jane P. Gilman, Irwin Kra, Rubí E.

Rodríguez, 2007-11-25. The authors' aim here is to present a precise and concise treatment of those parts of complex analysis that should be familiar to every research mathematician. They follow a path in the tradition of Ahlfors and Bers by dedicating the book to a very precise goal: the statement and proof of the Fundamental Theorem for functions of one complex variable. They discuss the many equivalent ways of understanding the concept of analyticity and offer a leisure exploration of interesting consequences and applications. Readers should have had undergraduate courses in advanced calculus, linear algebra, and some abstract algebra. No background in complex analysis is required. **Complex Numbers and Elementary**

**Complex Functions** Faith Mary Hawkins, J. Q. Hawkins, 1969.

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