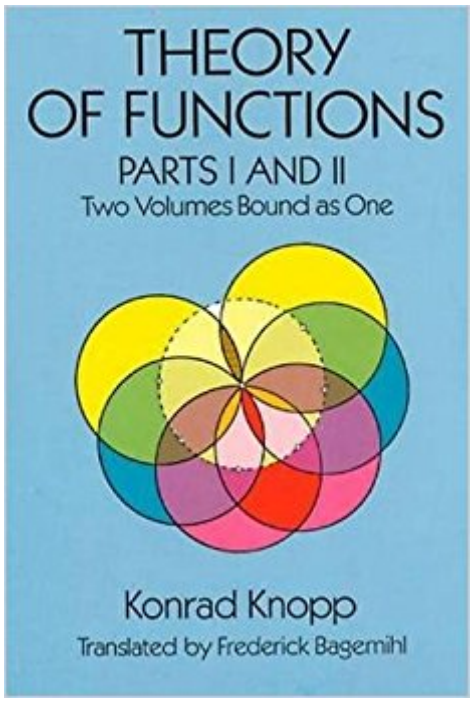
Theory Of Functions, Parts I And II (Dover Books On Mathematics) (Pts. 1 & 2)



Synopsis

This is a one-volume edition of Parts I and II of the classic five-volume set The Theory of Functions prepared by renowned mathematician Konrad Knopp. Concise, easy to follow, yet complete and rigorous, the work includes full demonstrations and detailed proofs.Part I stresses the general foundation of the theory of functions, providing the student with background for further books on a more advanced level.Part II places major emphasis on special functions and characteristic, important types of functions, selected from single-valued and multiple-valued classes.

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Customer Reviews

Text: English (translation) Original Language: German

I have yet to work through the book, but its place in Knopp’s original five-volume sequence was not apparent from ’s or Dover’s product descriptions, so I list the entire sequence here (Dover English editions, translated from the German originals), followed by the tables of contents, which I had difficulty finding in one place:Volume 1:Â Elements of the Theory of Functions, ISBN-10: 0486601544, ISBN-13: 978-0486601540; this volume is cited as a prerequisite on page 1 the next volume. Unfortunately it is out of print but used copies (or substitutes) can be found.Volumes 2 and 3 (the current book):Â Theory of Functions, Parts I and II (Dover Books on Mathematics) (Pts. 1 & 2). ISBN-10: 0486692191, ISBN-13: 978-0486692197Volumes 4 and 5:Â Problem Book in the

Theory of Functions (Dover Books on Mathematics). ISBN-10: 0486414515, ISBN-13: 978-0486414515.Volume 1 (Elements of the Theory of Functions) Table of Contents:----------Section I. Complex Numbers and their Geometric RepresentationChapter I. Foundations1. Introduction2. The system of real numbers3. Pointgs and vectors of the planeChapter II. The System of Complex Numbers and the Gaussian Plane of Numbers4. Historical remarks5. Introduction of complex numbers. Notation6. Equality and inequality7. Addition and subtraction8. Multiplication and division9. Derived rules. Powers10. The system of complex numbers as an extension of the system of real numbers11. Trigonometric representation of complex numbers12. Geometric representation of multiplication and division13. Inequalities and absolute values. ExamplesChapter III. The Riemann Sphere of Numbers14. The stereographic projection15. The Riemann sphere of numbers. The point infinity. ExamplesSection II. Linear Functions and Circular TransformationsChapter IV. Mapping by Means of Linear Functions16. Mapping by means of entire linear functions17. Mapping by means of the function w = 1/z18. Mapping by means of arbitrary linear functionsChapter V. Normal Forms and Particular Linear Mappings19. The group-property of linear transformations20. Fixed points and normal forms21. Particular linear mappings. Cross ratios22. Further examplesSection III. Sets and Sequences. Power SeriesChapter VI. Point Sets and Sets of Numbers23. Point sets24. Sets of real numbers25. The Bolzano-Weierstrass theoremChapter VII. Sequences of Numbers. Infinite Series26. Sequences of complex numbers27. Sequences of real numbers28. Infinite seriesChapter VIII. Power Series29. The circle of convergence30. Operations on power seriesSection IV. Analytic Functions and Conformal MappingChapter IX. Functions of a Complex Variable31. The concept of a function of a complex variable32. Limits of functions33. Continuity34. Differentiability35. Properties of functions represented by power seriesChapter X. Analytic Functions and Conformal Mapping36. Analytic functions37. Conformal mappingSection V. The Elementary FunctionsChapter XI. Power and Root. The Rational Functions38. Power and root39. The entire rational functions40. The fractional rational functionsChapter XII. The Exponential, Trigonometric, and Hyperbolic Functions41. The exponential function42. The functions cos z and sin z43. The functions tan z and cot z44. The hyperbolic functionsChapter XIII. The Logarithm, the Cyclometric Functions, and the Binomial Series45. The logarithm46. The cyclometric functions47. The binomial series and the general powerBibliography; IndexVolume 2 and 3 (Theory of Functions, Parts I and II) Table of Contents:----------PART I: ELEMENTS OF THE GENERAL THEORY OF ANALYTIC FUNCTIONSSection I. Fundamental ConceptsChapter 1. Numbers and Points1. Prerequisites2. The Plane and Sphere of Complex Numbers3. Point Sets and Sets of

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Great book and excellent service!

This is one of the classics of complex analysis. It is not as theoretically detailed as Walter Rudin's "Real and Complex Analysis" but it is an excellent treatment of the subject. It is best used in conjunction with the "Problem Book" by the same author.

Good for math purists but a little too detailed for me.

good

Excellent

This elegant little book covers the elements of a senior or 1st year graduate course on complex analysis, although a really good mathematics program like at Berkeley may look upon it as providing some material for a junior course in advanced calculus. It is not a new book, i.e. it predates the space age and computers, but the material is timeless and fundamental. Highly recommended for those who want some exposure to a first-class style in mathematics.

Despite not being a very recent book, a graduate student of mathematics who has to prepare complex analysis as a general topic for his qualifying examinations may find that this text covers all the essential material in the subject.

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