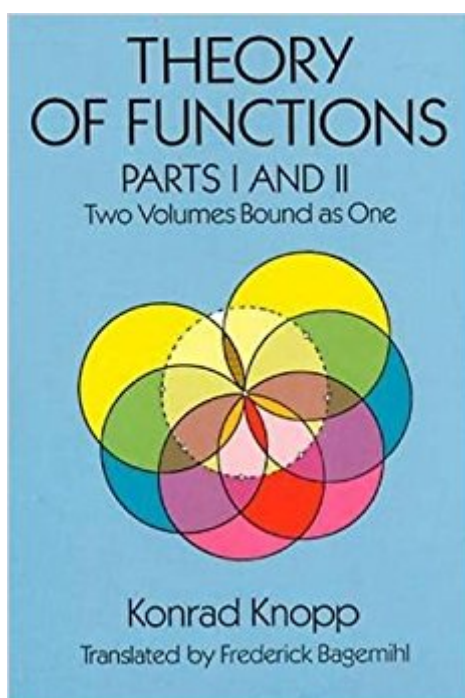


The book was found

# 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.

## Book Information

Series: Dover Books on Mathematics

Paperback: 320 pages

Publisher: Dover Publications (August 12, 1996)

Language: English

ISBN-10: 0486692191

ISBN-13: 978-0486692197

Product Dimensions: 5.4 x 0.6 x 8 inches

Shipping Weight: 10.4 ounces (View shipping rates and policies)

Average Customer Review: 4.2 out of 5 stars 8 customer reviews

Best Sellers Rank: #678,878 in Books (See Top 100 in Books) #127 in Books > Science & Math > Mathematics > Pure Mathematics > Functional Analysis #559 in Books > Science & Math > Mathematics > Mathematical Analysis #1024 in Books > Textbooks > Science & Mathematics > Mathematics > Calculus

## 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: 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): Theory of Functions, Parts I and II (Dover Books on Mathematics) (Pts. 1 & 2). ISBN-10: 0486692191, ISBN-13: 978-0486692197 Volumes 4 and 5: 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. Points 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  $w = 1/z$ 18. 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  $\sin z$ 43. The functions  $\tan z$  and  $\cot z$ 44. 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

Numbers	4. Paths, Regions, Continua
Chapter 2. Functions of a Complex Variable	5. The Concept of a Most General (Single-valued) Function of a Complex Variable
6. Continuity and Differentiability	7. The Cauchy-Riemann Differential Equations
Section II. Integral Theorems	Chapter 3. The Integral of a Continuous Function
8. Definition of the Definite Integral	9. Existence Theorem for the Definite Integral
10. Evaluation of Definite Integrals	11. Elementary Integral Theorems
Chapter 4. Cauchy's Integral Theorem	12. Formulation of the Theorem
13. Proof of the Fundamental Theorem	14. Simple Consequences and Extensions
Chapter 5. Cauchy's Integral Formulas	15. The Fundamental Formula
16. Integral Formulas for the Derivatives	Section III. Series and the Expansion of Analytic Functions in Series
Chapter 6. Series with Variable Terms	17. Domain of Convergence
18. Uniform Convergence	19. Uniformly Convergent Series of Analytic Functions
Chapter 7. The Expansion of Analytic Functions in Power Series	20. Expansion and Identity Theorems for Power Series
21. The Identity Theorem for Analytic Functions	Chapter 8. Analytic Continuation and Complete Definition of Analytic Functions
22. The Principle of Analytic Continuation	23. The Elementary Functions
24. Continuation by Means of Power Series and Complete Definition of Analytic Functions	25. The Monodromy Theorem
26. Examples of Multiple-valued Functions	Chapter 9. Entire Transcendental Functions
27. Definitions	28. Behavior for Large $z$
Section IV. Singularities	Chapter 10. The Laurent Expansion
29. The Expansion	30. Remarks and Examples
Chapter 11. The Various types of Singularities	31. Essential and Non-essential Singularities or Poles
32. Behavior of Analytic Functions at Infinity	33. The Residue Theorem
34. Inverses of Analytic Functions	35. Rational Functions
Bibliography; Index	PART II: APPLICATIONS AND CONTINUATION OF THE GENERAL THEORY
Introduction	Section I. Single-valued Functions
Chapter 1. Entire Functions	1. Weierstrass's Factor-theorem
2. Proof of Weierstrass's Factor-theorem	3. Examples of Weierstrass's Factor-theorem
Chapter 2. Meromorphic Functions	4. Mittag-Leffler's Theorem
5. Proof of Mittag-Leffler's Theorem	6. Examples of Mittag-Leffler's Theorem
Chapter 3. Periodic Functions	7. The Periods of Analytic Functions
8. Simply Periodic Functions	9. Doubly Periodic Functions; in Particular, Elliptic Functions
Section II. Multiple-valued Functions	Chapter 4. Root and Logarithm
10. Prefatory Remarks Concerning Multiple-valued Functions and Riemann Surfaces	11. The Riemann Surfaces for $p(\sqrt[p]{z})$ and $\log z$
12. The Riemann Surfaces for the Functions $w = \sqrt[p]{(z - a_1)(z - a_2) \dots (z - a_k)}$	Chapter 5. Algebraic Functions
13. Statement of the Problem	14. The Analytic Character of the Roots in the Small
15. The Algebraic Function	Chapter 6. The Analytic Configuration
16. The Monogenic Analytic Function	17. The Riemann Surface
18. The Analytic Configuration	Bibliography, Index
Volume 4 and 5 (Problem Book in the Theory of Functions, Two Volumes Bound As One)	Table of Contents:-----
Volume I: Problems in the Elementary Theory	

of Functions

Chapter I. Fundamental Concepts

1. Numbers and Points. Problems; Answers
2. Point Sets. Paths. Regions

Chapter II. Infinite Sequences and Series

3. Limits of Sequences. Infinite Series with Constant Terms. Problems; Answers
4. Convergence Properties of Power Series. Problems; Answers

Chapter III. Functions of a Complex Variable

5. Limits of Functions. Continuity and Differentiability. Problems; Answers
6. Simple Properties of the Elementary Functions. Problems; Answers

Chapter IV. Integral Theorems

7. Integration in the Complex Domain. Problems; Answers
8. Cauchy's Integral Theorems and Integral Formulas. Problems; Answers

Chapter V. Expansion in Series

9. Series with Variable Terms. Uniform Convergence. Problems; Answers
10. Expansion in Power Series. Problems; Answers
11. Behaviour of Power Series on the Circle of Convergence. Problems; Answers

Chapter V. Conformal Mapping

12. Linear Functions. Stereographic Projection. Problems; Answers
13. Simple Non-Linear Mapping Problems. Problems; Answers

Volume II: Problems in the Advanced Theory of Functions

Foreword

Chapter I. Additional Problems for I, Chs. 1-51.

1. Fundamental Concepts
2. Infinite Sequences and Series
3. Functions of a Complex Variable
4. Integral Theorems
5. Expansions in Series

Chapter II. Singularities

6. The Laurent Expansion
7. The Various Types of Singularities
8. The Residue Theorem, Zeros, and Poles

Chapter III. Entire and Meromorphic Functions

9. Infinite Products. Weierstrass's Factor-theorem
10. Entire Functions
11. Partial-fractions Series. Mittag-Leffler's Theorem
12. Meromorphic Functions

Chapter IV. Periodic Function

13. Simply Periodic Functions
14. Doubly Periodic Functions

Chapter V. Analytic Continuation

15. Behavior of Power Series on the Boundary of the Circle of Convergence
16. Analytic Combination of Power Series
17. Analytic Continuation of Arbitrarily Given Functions

Chapter VI. Multiple-valued Functions and Riemann Surfaces

18. Multiple-valued Functions in General
19. Multiple-valued Functions; in Particular, Algebraic Functions

Chapter VII. Conformal Mapping

20. Concept and General Theory
21. Specific Mapping Problems

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.

[Download to continue reading...](#)

Theory of Functions, Parts I and II (Dover Books on Mathematics) (Pts. 1 & 2) Mosby's Review Questions for the NBCE Examination: Parts I and II (Pts. 1 & 2) Bundle of Algorithms in C++, Parts 1-5: Fundamentals, Data Structures, Sorting, Searching, and Graph Algorithms (3rd Edition) (Pts. 1-5) Leadership Roles and Management Functions in Nursing: Theory and Application (Marquis, Leadership Roles and Management Functions in Nursing) Problems and Theorems in Analysis II: Theory of Functions. Zeros. Polynomials. Determinants. Number Theory. Geometry (Classics in Mathematics) Functions and Graphs (Dover Books on Mathematics) Handbook of Mathematical Functions: with Formulas, Graphs, and Mathematical Tables (Dover Books on Mathematics) Basic Immunology Updated Edition: Functions and Disorders of the Immune System With STUDENT CONSULT Online Access, 3e (Basic Immunology: Functions and Disorders of the Immune System) Measure Theory and Fine Properties of Functions, Revised Edition (Textbooks in Mathematics) Non-Euclidean Geometry in the Theory of Automorphic Functions (History of Mathematics) Elementary Number Theory: Second Edition (Dover Books on Mathematics) 2nd (second) Edition by Underwood Dudley published by Dover Publications (2008) JB 37 HAZELL 3 BRASS CATS 10 PART 4 TPT/HN/4 TBN/TBA SC/PTS (Just Brass) JUST BRASS NO1 BATTLE SUITE 5 PART 2 TPT/HN/TBN/TBA SC/PTS TRIO FOR PIANO OBOE & BASSOON SC/PTS (Wilhelm Hanswn Edition Nr) JB 29 POULENC SONATA FOR BRASS 3 PART TPT/HN/TBN SC/PTS (Just Brass) Tarantelle, Op. 6: Flute & Clarinet (Score & Parts) (with Piano), Score & Parts (Kalmus Edition) Carmen: Chorus Parts (French, English Language Edition), Chorus Parts (Kalmus Edition) (French Edition) Faust: Chorus Parts (French, English Language Edition), Chorus Parts (Kalmus Edition)

(French Edition) I Pagliacci: Chorus Parts (Italian, English Language Edition), Comb Bound Chorus Parts (Kalmus Edition) (Italian Edition) Cavalleria Rusticana: Chorus Parts (Italian, English Language Edition), Chorus Parts (Kalmus Edition) (Italian Edition)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)