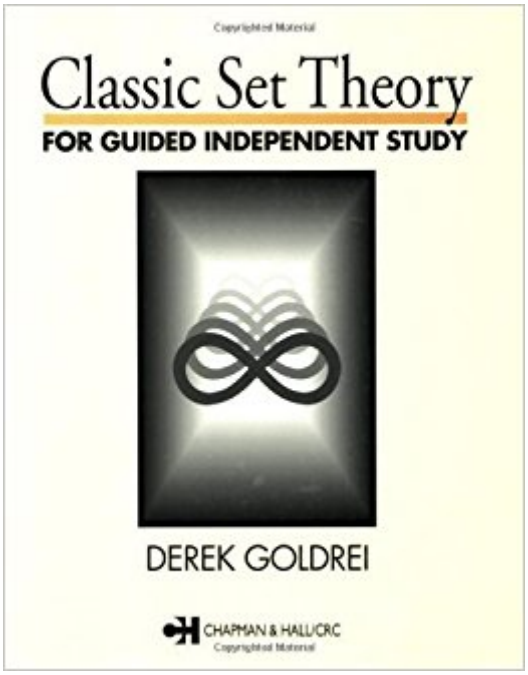
Classic Set Theory: For Guided Independent Study (Chapman & Hall Mathematics S)



Synopsis

Designed for undergraduate students of set theory, Classic Set Theory presents a modern perspective of the classic work of Georg Cantor and Richard Dedekin and their immediate successors. This includes:The definition of the real numbers in terms of rational numbers and ultimately in terms of natural numbersDefining natural numbers in terms of setsThe potential paradoxes in set theoryThe Zermelo-Fraenkel axioms for set theoryThe axiom of choiceThe arithmetic of ordered setsCantor's two sorts of transfinite number - cardinals and ordinals - and the arithmetic of these.The book is designed for students studying on their own, without access to lecturers and other reading, along the lines of the internationally renowned courses produced by the Open University. There are thus a large number of exercises within the main body of the text designed to help students engage with the subject, many of which have full teaching solutions. In addition, there are a number of exercises without answers so students studying under the guidance of a tutor may be assessed.Classic Set Theory gives students sufficient grounding in a rigorous approach to the revolutionary results of set theory as well as pleasure in being able to tackle significant problems that arise from the theory.

Book Information

Series: Chapman & Hall Mathematics S
Paperback: 296 pages
Publisher: Chapman and Hall/CRC; 1 edition (July 3, 1996)
Language: English
ISBN-10: 0412606100
ISBN-13: 978-0412606106
Product Dimensions: 0.8 x 8.5 x 10.2 inches
Shipping Weight: 13.6 ounces (View shipping rates and policies)
Average Customer Review: 4.6 out of 5 stars 10 customer reviews
Best Sellers Rank: #874,805 in Books (See Top 100 in Books) #98 inÂ Books > Science & Math > Mathematics > Pure Mathematics > Set Theory #9516 inÂ Books > Textbooks > Science & Mathematics > Mathematics

Customer Reviews

This book should be the first on your list if you plan to study set theory or foundations of mathematics in general. The writing style is informal but the material is well presented to the reader in a way that its rigor is not sacrificed. The author goes through many proofs outlining each and

every step. Solutions to exercises are also included even though as the book progresses the author omits more and more solutions because he expects that the readers level should be increasing. I really liked this method. I have not read other books on set theory, but it is really hard to imagine a better one. Not much is expected as prerequisites. If you understand the mathematical concepts of convergence, sequences and functions then the book should be pretty much self-contained. If not I would recommend that you read something like "Sets, sequences & mappings" by Anderson and Hall. This is a really small book but its excellent in that it prepares you for more abstract courses.

This is the best textbook for axiomatic set theory I have ever read! You can find clear and precision proofs of theorems which are sketched or over simplified in other books. More than half of the exercises have solutions and there are many helpful examples to clarify the concepts of definitions.Unlike most of the set theory books, Derek’s book starts from "every day mathematics"(arithmetics, real analysis or algebra) and gradually lead you to see the connection between "every day mathematics" and abstract set theory. He did not put you in the "empty sky". On the contrary, this book enhances your set theory knowledge from a practical mathematics point of view and by the way deepen your mathematics knowledge from a set theoretical point of view.My suggestion: Grab it and read it from the first page to the end. It must be the most fascinating experience you will find in set theory!

In recent months, I read (at least in part) about ten books on set theory, of different levels and styles. Goldrei’s book is by far the best on my list. Goldrei has the talent of presenting a fairly difficult and abstract material in a friendly style, with abundant explanations, solved exercises, illustrations, and illuminating comments. I can highly recommend this book as a first reading on set theory, whether for self-study or as a supplementary text for a course on the subject. For the interested readers of this review, here is how I rank some of the other books I’ve read: Stoll is definitely a second, then Suppes (which goes deeper than both Goldrei and Stoll, but in my opinion is poorly organized and suffers from nonstandard and funny-looking notations), followed by Halmos, Machover, and a few more. And last and least, the incomprehensible "book" by Vaught.

This is the only set theory introduction I have found that is legitimately accessible for beginners. Unlike most set theory "intro" books, which are very mathy and look like a jumble of notation and proofs, Goldrei actually explains what he’s doing in normal English. The book doesn’t sacrifice the math aspect of set theory, it just gives it to you gradually. This is not an easy book -- you need to

work your way through it slowly and do the exercises. I only really started understanding it after a couple of readings and looking at some other books. But if you're trying to learn set theory, it is the only book I can recommend... and I recommend it wholeheartedly!

Goldrei's book is a truly unique, guided independent study of set theory, against the plethora of otherwise obscure, if not indigestible texts...This book now stands, along with Smullyan's "Set Theory and the Continuum Problem", in my "personal bible" for this part of maths.

I went to my university's library and tried to compare Goldrei's book with almost all other popular accounts on Set theory, prior to investing my time learning the basics of the subject. After having almost finished reading it, I believe that this a model of how textbooks in mathematics should be written. Let me be a little bit more specific:1)Suberb organization of the material. Ideas are built gradually without logical gaps or regressions. Definitions and theorems are clearly stated. "What follows from what" is always transparent. Even the choice of paragraphs is so well thought, that one can easilly assign a title in each of them for quick reference later on.2)Each subject is clearly introduced within its historical and logical context. Each theorem (and even exercise) is motivated for its importance and its merits in the global picture of Set theory.3)The logic and intuition behind the proofs is given (as well as the proof itself...) in a well organized and not unecessarily wordy manner.4) There are exercises within the main text (which, as usual, are well motivated for their importance) with solutions folowing right after. In this way, one may develop skills and understanding, without getting frustrated or spending too much time. There are also exercises in the end of each section which are interesting and not too difficult.5) There are comments aside of the main text, which range from ideas concerning a proof to historical remarks or recommendations to the reader. In this way, the main text remains clean of tangencies, but never dry.I could continue praising this book, but let me cut it short by saying just this: it is one of those proper (i.e. rigorous) math textbooks that invite you to read each following chapter and to turn each page to see what's next. Having finished it I feel I have a pretty firm understatnding of the basics.I only wish that Goldrei could write a second book on specialized topics (say, similar to the topics covered in Devlin's "The Joy of Sets", or Moschovakis' book), with the same energy and enthousiasm that wrote this one.

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