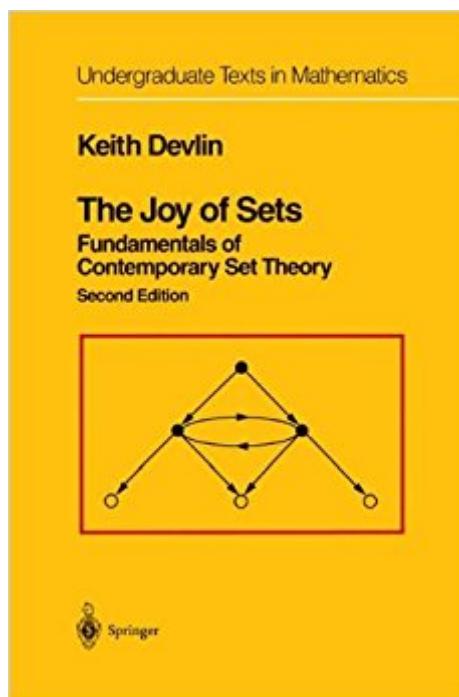


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# The Joy Of Sets: Fundamentals Of Contemporary Set Theory (Undergraduate Texts In Mathematics)



## Synopsis

This text covers the parts of contemporary set theory relevant to other areas of pure mathematics. After a review of "naïve" set theory, it develops the Zermelo-Fraenkel axioms of the theory before discussing the ordinal and cardinal numbers. It then delves into contemporary set theory, covering such topics as the Borel hierarchy and Lebesgue measure. A final chapter presents an alternative conception of set theory useful in computer science.

## Book Information

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## Customer Reviews

The book is very easy to read! (at some points, well I have trouble learning new material). The book begins with naive set theory, the stuff every math major first gets exposed to when they first learn about sets. To then introduce precise definitions and the axioms of set theory. It is very detailed, and exercises are pretty challenging, unless you are some kind of genius, it should be an easy read. I am your average math major, nothing special but I do enjoy the maths they have. I enjoy the pure side of the subject (like modern algebra and some topology) and this adds as a very interesting topic to know. If I can read it, you probably can too. Sets, sets and sets. Be careful when reading in public, apparently it looks like the JOY OF SEX to some people :P.

Marvellous book by an acknowledged set theory expert and master expositor. Contains all the basics, ordinals and cardinals, but also advanced topics, such as the surprising existence of

Aronszajn trees, non well-founded sets, boolean valued models for independence results, and more. The style is pleasant and lucid, with occasional hints that help the intuition. At several places an appetizing view is given on more advanced developments outside the scope of this introductory book. One of my favourite books.

This book is excellent. It gives a thorough introduction to set theory. Some parts of the book I found a bit hard to process, but I just had to think about them and re-read and I finally got it. I'd wait for the price to go down though before you buy it, \$50 is a lot for an undergraduate text on set theory.

This book is completely useless. It is near impossible for someone to learn Axiomatic Set Theory from this book. The majority of the proofs in this book go something like "obvious", "trivial", "left to the reader", "an easy exercise" and so on. The proof may be obvious to the author - but not to someone who is learning the subject for the first time. The majority of my class also hated this text and I don't think our professor like it too much either. In fact, the first time our professor recommended opening the book was to see how the Hebrew letters used for cardinal numbers look typed, since he couldn't draw them correctly on the blackboard! I usually don't write reviews for texts I dislike but I hated this book enough that I felt obliged to caution anyone planning to waste their money on this book.

Keith Devlin is one of those rare research mathematicians who is able to make recent advances in mathematics understandable and interesting to those whose mathematical education is obsolete or incomplete. I'm in the former category, having done my graduate work in pure math 50 years ago; although I've tried to keep up, constraints of time and other obligations have made it difficult. Most modern texts on set theory put the reader to sleep, either because they avoid the important parts ("Set Theory for Those who Don't Want to Know It") or because they employ a degree of formalism that is quite difficult to grasp ("Set Theory Derived by Pure Propositional Logic, Step by Step"). Devlin's book avoids both traps. He presents modern advanced material that illuminates the subject admirably, but is careful not to submerge the reader in overwhelming finicky details. His discussions of constructive set theory, of independence proofs in set theory, and of non-well-founded set theory, are the first ones I've seen that get me excited enough to put the book aside and start exploring some of the implications on my own. If I search for anything about the book to criticize, I find only one very minor thing. The sequence of proofs that show "Zorn's Lemma", the Axiom of Choice, the well-ordering principle, "Tukey's Lemma", etc to be equivalent to one another as an addition to the

traditional Zermelo-Frankel axioms would be clearer if prefaced by an intuitive discussion of why the various steps in the chain of reasoning "ought" to work as they do; such a discussion helped me a lot many years ago to internalize what's going on. But that comment is just a nit. On the other extreme, having once, 30+ years ago, being forced by the exigencies of a real-world problem to blunder through the creation of my own version of fragments of non-well-founded set theory, it gives me much joy to see it exounded as a coherent mathematical topic. I read and reread this book, and drag it off the shelf when it occurs to me to ponder on some aspect that I don't fully recall. There are a number of other books on topics in pure mathematics about which I feel the same way, but they are a tiny minority among the deluge of texts that will never be read by anyone who doesn't have to. It's obviously an excellent text for advanced undergraduates and beginning graduate students, but beyond that, I recommend it to anyone with a working knowledge of pure math whose knowledge of set theory is somewhat behind current knowledge. In short, buy a copy!

Anyone seeking a deeper understanding of the foundations of the mathematics will benefit from reading this excellent book. Despite considerably abstract (almost no concrete examples), this book was carefully conceived to guide the reader through some of the most exciting contemporary ideas on set theory. If I had to name a minus about this book, I would mention the lack of solutions to the problems posted by the author. This makes the book a little less suitable for self-study. Nevertheless, this book was written with care and love for the subject.

This text is intended for seniors or beginning grads. The first three of seven chapters form a very quick survey of naive set theory. Since it aims at a more advanced audience, it is not as explanatory as Enderton and the exercises assume more maturity. Chapters 4 - 7 survey some advanced topics that aren't part of the usual introductory set theory course. These chapters have no exercises. The development lacks a lot in clarity, exercises have only cursory introduction, and the author tends to get ahead of himself, assuming material before introducing it. The text by Roitman is much better and is targeted at the same audience.

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