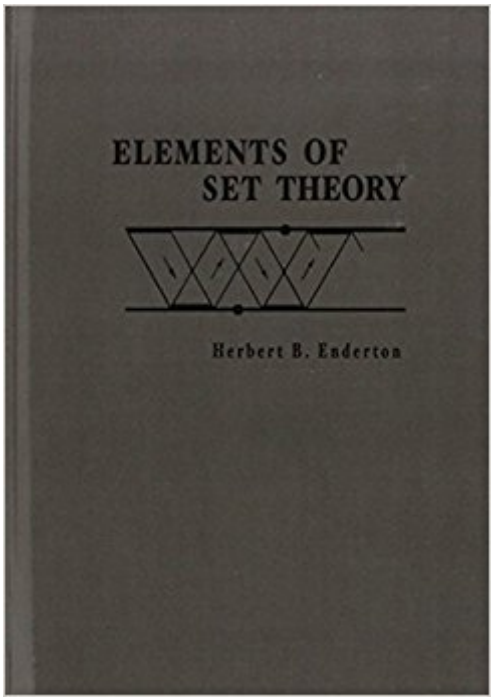
Elements Of Set Theory



Synopsis

This is an introductory undergraduate textbook in set theory. In mathematics these days, essentially everything is a set. Some knowledge of set theory is necessary part of the background everyone needs for further study of mathematics. It is also possible to study set theory for its own interest--it is a subject with intruiging results anout simple objects. This book starts with material that nobody can do without. There is no end to what can be learned of set theory, but here is a beginning.

Book Information

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Customer Reviews

The only reason I won’t say it’s THE BEST introduction to set theory is that I haven’t read ALL such introductions. I am (obviously) a student of logic and I worked my way through the whole book a few years ago. It is an insightful development of set theory, both as a foundation for mathematics and a distinctive mathematical discipline in its own right. Set theory can be developed from a "naive" or an "axiomatic" perspective. The naive approach simply asks the reader to accept arguments about sets on the basis of informed intuition, whereas the axiomatic approach relies on showing how mathematical proofs can be formalized as deductions from a precise axiom system. Enderton’s book deftly combines both approaches ; axiomatic considerations are isolated from the rest of the text and identified by a stripe running down the side of the page. Those who are not interested in axioms can avoid dealing with them almost entirely, but enthusiasts of formal rigor (like me!) won’t be disappointed either. The axioms, which comprise a system known as Zermelo Fraenkel set theory with Choice, are introduced as needed in the overall development (so Replacement Axioms

aren’t mentioned until page 179). The text develops relations and functions as well as natural and real number systems, and then goes on to cardinals, orderings, and ordinals. I particularly enjoyed Enderton’s well-motivated exposition of ordinals, which clearly shows how these numbers measure the lengths of well-orderings. His treatment of cardinals, transfinite induction, and the Axiom of Choice, is enlightening as well. A final chapter, which includes cofinality and inaccessible cardinals, should whet the student’s appetite for further study in set theory. I have a hard time thinking of anything negative to say about this book. Perhaps it would be better if its nicely annotated bibliography were a bit more extensive. If you wanna learn set theory, buy this book!

Perhaps because it is a Foundations book -- in my mathematics training it always seemed that the people who did the best job of motivating and explaining (or at least making you feel you understood) the material were Foundations people -- but this book has a presentation polished to the point where the closest genre of mathematics text in level of polish would be intro calculus books, where the problems theorems and proofs have been worked over for many many many years. Here, however, the material is in great part relatively recent - probably the closest to contemporary stuff you can see as an undergraduate -- in Real Analysis, by contrast, you may well just be coming out of the 19th century by graduate school. This polish, I have discovered in later years, facilitates use of this book for self-study and it is a wonderful text for providing rapid refreshment of important concepts. I have over the years referred back to it on a number of occassions and have always been pleasantly reminded what a wonderful book it is.This is a very nice book and the best introduction to the material I have seen (although, given the number of intro books I have seen on the topic, this may not be a strong statement).

The book is nice and simple and well explained. The exercises problems are solvable and are not contest problems like in some books. Pretty much most of the other reviews have summed it up well. I can confidently say that among books written on Set Theory (like by Cohen, Halmos, Stoll, Hrbacek & Jech), that I bought and tried to read, this book is SIMPLY THE BEST introduction to Set Theory. Blindly read this book and no other book. It has enough set theory to get you going in pure mathematics.Addition to the review on 11/21/2012: I am close to being done with the arithmatic section and I must say that a book on set theory cannot possibly be better than this one. I have all the material I need to know in order to get a good start for Real Analysis. Those parts of the proof that he says "is left as an exercise" are truly trivial after following the material that is covered till that point. This book is SIMPLY THE BEST. Don’t think twice. Just get this book and read it top to

bottom. There is a good reason why Stanford and Berkeley prescribe this book as the text for their Set Theory courses every year. I know that Hrbacek and Jech is one contender but I am very biased towards Enderton's book as he makes this subject unbelievably simple where as other books (and definitely Halmos's book) makes it seem harder than what it is.

I might sound biased, but who doesn't? Enderton's book is the BEST introduction out there if you want to learn. There are better books for conciseness or pendanticalness, what a word :(. But, he introduces the material in such a way that the novice can actual absorb most of it in one go through. It's deep enough that a return trip through a difficult chapter is worth your time. After reading this text you can easily segueway to Moschovakis's book, "Notes on Set Theory" or even attempt books like "Set Theory An Introduction To Independence Proofs (Studies in Logic and the Foundations of Mathematics)" by Kunen.This book covers all of the basics of set theory (greater in scope than Halmos's "Naive Set Theory" (which is a great book by the way)).

The style is readable without being wordy. The book starts with a good, intuitive discussion of sets and the axiomatic method, but follows with a sketchy description of truth tables. The rest of the book is similarly uneven. It is best when introducing some topics with extensive motivation. Its main weaknesses are in the completeness of the explanations and the clarity of the proofs. Several of the proofs were the cause of much head-scratching. That shouldn't happen in an elementary text. There were several spots in the text where the train of thought is not clear. Sections that I particularly thought were sloppy and inadequate were the development of cardinals and the Axiom of Choice.As math textbooks go, I've read better, but for an undergraduate introduction to set theory, the competition is not very impressive. There are 23 errata listed on his web site. It is a simple matter to pencil in the corrections. One book you should consider as an alternative is Hrbacek & Jech. If the high price is an issue, the text by Stoll does a good job with the basics.

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