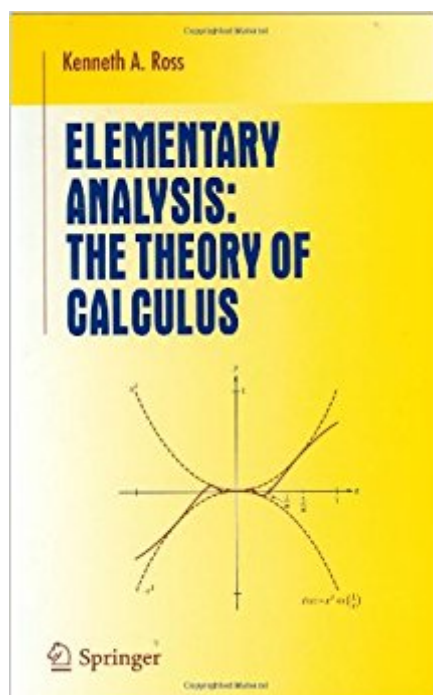


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# Elementary Analysis: The Theory Of Calculus



## Synopsis

Designed for students having no previous experience with rigorous proofs, this text can be used immediately after standard calculus courses. It is highly recommended for anyone planning to study advanced analysis, as well as for future secondary school teachers. A limited number of concepts involving the real line and functions on the real line are studied, while many abstract ideas, such as metric spaces and ordered systems, are avoided completely. A thorough treatment of sequences of numbers is used as a basis for studying standard calculus topics, and optional sections invite students to study such topics as metric spaces and Riemann-Stieltjes integrals.

## Book Information

Hardcover: 272 pages

Publisher: Springer; 1st edition (March 3, 1980)

Language: English

ISBN-10: 038790459X

ISBN-13: 978-0387904597

Product Dimensions: 6.1 x 0.9 x 9.2 inches

Shipping Weight: 1.4 pounds

Average Customer Review: 4.2 out of 5 stars 36 customer reviews

Best Sellers Rank: #111,621 in Books (See Top 100 in Books) #71 in Books > Science & Math > Mathematics > Mathematical Analysis #276 in Books > Textbooks > Science & Mathematics > Mathematics > Calculus #392 in Books > Science & Math > Mathematics > Pure Mathematics > Calculus

## Customer Reviews

From the reviews: K.A. Ross Elementary Analysis The Theory of Calculus "This book is intended for the student who has a good, but naïve, understanding of elementary calculus and now wishes to gain a thorough understanding of a few basic concepts in analysis, such as continuity, convergence of sequences and series of numbers, and convergence of sequences and series of functions. There are many nontrivial examples and exercises, which illuminate and extend the material. The author has tried to write in an informal but precise style, stressing motivation and methods of proof, and, in this reviewer's opinion, has succeeded admirably." —MATHEMATICAL REVIEWS "This book occupies a niche between a calculus course and a full-blown real analysis course. I think the book should be viewed as a text for a bridge or transition course that happens to be about analysis. Lots of counterexamples. Most calculus books get the proof of the chain rule wrong, and Ross

not only gives a correct proof but gives an example where the common mis-proof fails." (Allen Stenger, The Mathematical Association of America, June, 2008)

As other reviewer said, it start very nice, then it gets harder later. At the earlier chapters, it has very clear examples with a lot of examples. Then in later chapters, it almost seems like it is written by different author: texts are not clear, and there is very few examples. Also, it is annoying to learn topology topics from the book. It has topology chapters scattered around the book (chapter 13, 21, & 22), It would be much easier to make the topology concept in a separate chapter. I don't think this book has good structure to learn. I would suggest "Real Analysis" by Bartle and Sherbert.

I bought this reasonably priced text in order to review what I had learned over 25 years ago in a one-semester analysis class. In that course, we covered the first 10 chapters of Arthur Mattuck's intro to analysis dealing with sequences/series/limits, then Chapters 2 - 4 of Apostol's Mathematical Analysis covering metric spaces, then class notes on Fourier analysis, ending with the last chapters of Mattuck on Riemann integration. Although I enjoyed the course, I felt we were all over the map. By contrast, this book proceeds very evenly and logically through the basics and, unlike many texts, it has the virtue of posting solutions to almost half of the problems in the back, which is wonderful for self-study. I particularly liked the optional sections on metric spaces, as it brought me back to that old thrill I first had on dealing with more abstract concepts. My only complaint mirrors that of another reviewer, who wished that the book had been updated. Had Ross expanded the metric space chapters, an already very good book might have become really excellent. As it is, Ross does a good job demonstrating the versatility of analysis on more abstract spaces in the 24 or so pages he devotes to them. A fine little book indeed!

I really liked this book in the beginning, because the first few chapters really are very elementary and easily digestible, very much unlike Rudin, which hits you hard right off the bat with metric spaces and topologies. Unfortunately, as I've gotten deeper into the book, my appreciation for this book substantially decreased and my appreciation of Rudin increased. The way that Ross orders his later chapters and concepts is poor. Integration and the Fundamental Theorem of Calculus are relegated to the very end of the book, but throughout the book Ross often uses Integration and the Fundamental Theorem of Calculus as tools for his earlier proofs and examples. Some egregious examples: The Integral is defined in Chapter 32. Chapter 15 talks about The Integral Test for convergence of series, and then never uses it until after the Integral is defined at the end of the

book. Chapter 25 has a section on how integrals and uniform limits are interchangeable. Once again, before Chapter 32. Chapter 26 has what the author himself calls a "sneaky proof" (which in itself is incredibly condescending towards the reader) for differentiation of power series, and it uses the Fundamental Theorem of Calculus which is only proven in Chapter 34. There are other examples, just as egregious. Not surprisingly, Rudin presents all these topics in the appropriate order. What I wish for is a book that starts out as user-friendly as Ross does, but doesn't compromise the rigor and the order of presentation, much like Rudin doesn't.

My analysis class used Rudin's book but my TA recommended this as a read along text and I can definitely say it was much clearer for explaining concepts than Rudin. Helped me do well in the course. I would recommend it for anyone taking an analysis course at the intro level.

I went through a lot of math books that made me wonder if the author was purposely making it hard or if they were just bad at explaining things. I didn't have that experience with this book. This book is well written and easy to understand (given its subject). Highly recommended for anyone learning Advanced Calculus 1 for the first time.

Best of its kind.

I am using this book for my first mathematical (real) analysis class, and having a good time with this book. I have classmates that have the new edition and this one is as good as the new editions.

Good.

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