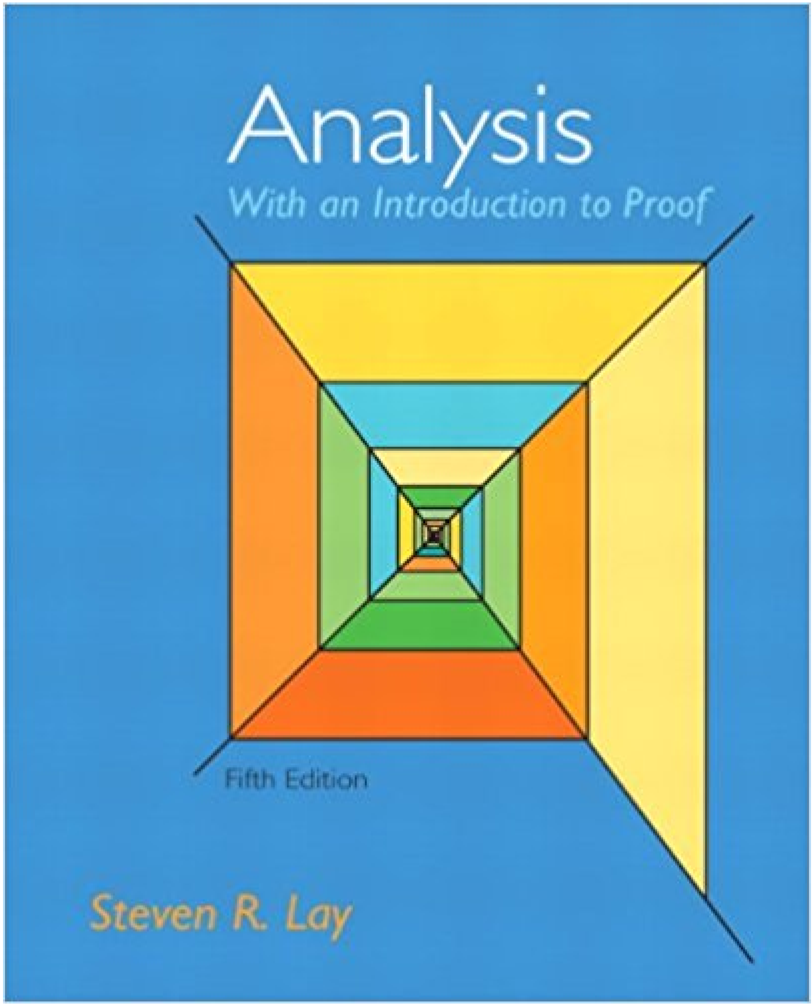
Analysis With An Introduction To Proof, 5th Edition



Synopsis

For courses in undergraduate Analysis and Transition to Advanced Mathematics.   Â   Analysis with an Introduction to Proof, Fifth Edition helps fill in the groundwork students need to succeed in real analysisâ ”often considered the most difficult course in the undergraduate curriculum. By introducing logic and emphasizing the structure and nature of the arguments used, this text helps students move carefully from computationally oriented courses to abstract mathematics with its emphasis on proofs. Clear expositions and examples, helpful practice problems, numerous drawings, and selected hints/answers make this text readable, student-oriented, and teacher- friendly. Â

Book Information

Hardcover: 400 pages

Publisher: Pearson; 5th edition (January 1, 2013)

Language: English

ISBN-10: 032174747X

ISBN-13: 978-0321747471

Product Dimensions: 7.5 x 1.1 x 9.2 inches

Shipping Weight: 1.6 pounds (View shipping rates and policies)

Average Customer Review: 3.9 out of 5 stars   44 customer reviews

Best Sellers Rank: #44,697 in Books (See Top 100 in Books)   #16 inÂ Books > Science & Math > Mathematics > Pure Mathematics > Logic   #785 inÂ Books > Textbooks > Science & Mathematics > Mathematics

Customer Reviews

Steven Lay is a Professor of Mathematics at Lee University in Cleveland, TN.Â He received M.A. and Ph.D. degrees in mathematics from the University of California at Los Angeles.Â He has authored three books for college students, from a senior level text on Convex Sets to an Elementary Algebra text for underprepared students.Â The latter book introduced a number of new approaches to preparing students for algebra and led to a series of books for middle school math.Â Professor Lay has a passion for teaching, and the desire to communicate mathematical ideas more clearly has been the driving force behind his writing.Â He comes from a family of mathematicians, with his father Clark Lay having been a member of the School Mathematics Study Group in the 1960s and his brother David Lay authoring a popular text on Linear Algebra. He is a member of the American Mathematical Society, the Mathematical Association of America, and the Association of Christians in the Mathematical Sciences.

Quite often Mathematics textbooks can be a challenge to read and absorb without actual lectures from a Professor/Master. This book however, is very good and really does not need supplemented learning time.I have been rather surprised by how good this book is. Gives exact references in proofs. Each section builds off each other in a very linear fashion.I am very glad my professor choose this textbook for my Real Analysis 1 lecture.

I thought this was a really good textbook for what could easily be a confusing subject. The author very carefully introduces all relevant definitions upfront and the chapters stack over one another (kind of like a Matryoshka doll). Everything is presented to the reader assuming little prior knowledge of calculus and a majority of the proofs are either built through logic or basic algebra. The book is written somewhat like an essay (in that there are introductions, 'paragraphs' and conclusions to each chapter) and proceeds in a linear manner.There were some excellent visual aids which helped clarify the material at certain points. (In particular, I found the graphics for neighborhoods and the IVT to be very useful.) The combination of verbal, mathematical and visual descriptions often helped solidify exactly what was being described. There were also quite a few examples of how concepts could be used for other purposes (like on p. 218 in the 5th edition where the IVT is used to prove that every positive number has a positive nth root). I thought the applications were interesting and they definitely piqued my curiosity more than once.The only thing I wish it included was answers to the practice problems (but maybe those are available elsewhere?). The back of the book only has 'hints' for selected problems but I felt like there weren't enough worked examples in the book to ensure you were grasping the concepts (enough to apply them, in any case).However, I would overall recommend this book if you are interested in seeing concretely how some of the ideas you might take for granted in a calculus course could be derived from basic principles.

This is fairly basic introduction to Principles of Analysis, on intermediate undergrad level, strictly in R^1. The only other similar book I'm familiar is Kirkwood. The books of Rudin, Apostol, etc present the subject on much higher level.My original intention was to take a course with Rudin, but after I've realized I had a hard time digesting his style, I've decided to take more elementary course. I knew the course would be using Lay, so I got this textbook and tried to learn it on my own, but wasn't sure how I was doing and ended up taking the course (still with Lay) anyway. So I'm quite familiar with this textbook. The only topics we didn't cover is "series" and "sequences and series of functions".Now overall I would say it’s a mixed bag. First, the good things. The first few introductory sections on sets and proof techniques are excellent, highly recommended, that’s how I learned how to prove. I found exercises very useful.Now things I don’t like. First, lots of typos. I think I had 4th edition, and still I’ve managed to find over 20 misprints, incorrect references, etc, etc, all were reported directly to author. Second, and that’s probably more important, in several instances the proofs are too convoluted and not self-motivating. To be more specific, the proof of Heine-Borell theorem is less than adequate. It is correct, but that’s the kind of proof you read and then entirely forget how it went. I remember on the first reading I didn’t feel comfortable with this proof at all. When I discussed this book with professor I was going to take that course with, he (surprisingle) agreed with me and told me he would present a different proof (and he did, much better one). Another example: proof that the modified Dirichlet function is Riemann-integrable. The proof can be substantially simplified. In fact, I’ve managed to simplify it. Finally, the same professor told me Lay’s presentation of Riemann integrals had some holes in them, so he used Kirkwood instead. In fact he told me he was making choice between Kirkwood and lay (but ended up choosing Lay because he didn’t like Kirkwood’s book layout. Kind of funny reason, I think.)In any case, I think Kirkwood is a bit better for self-study. Unfortunately it doesn’t have intro to proofs, logic and sets. Ideally you should have both books, if you plan for self-study.(note: I did took the Principles of analysis, after I’ve finished that one with Lay, and did quite well.)

Possiably the best undergraduate Real Analysis book around. Don’t know the later revisions. But I use this book as a reference many years later.

Love it

I have the third edition, which I purchased for self study after I ran into trouble in Kolmogorov and Fomin, Introductory Real Analysis, which I had purchased after I ran into trouble with the topology and real analysis assumed by O’Neill in Elementary Differential Geometry. The advantages of Lay’s book are described very well in the editorial reviews above. The book is very clear in both layout and prose. The author anticipates questions and explains the reasons for strategems used in proofs. The logical connections among such concepts as open and closed, complete, compact, continuity, metric spaces, and topology are presented clearly. I am enjoying Lay’s book and I anticipate that I will soon be resuming study in differential geometry.

I took an independent study course over the summer for real analysis. This book was pretty great at explaining most topics. The book could have gave a little more examples on some topics. Also, the brief review for proofs at the beginning was pretty cool. However, it did help to have someone else explain the material also.

Had a problem with my order but fantastic customer won me over. They were very responsive and cleared up the issue. Thanks!

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