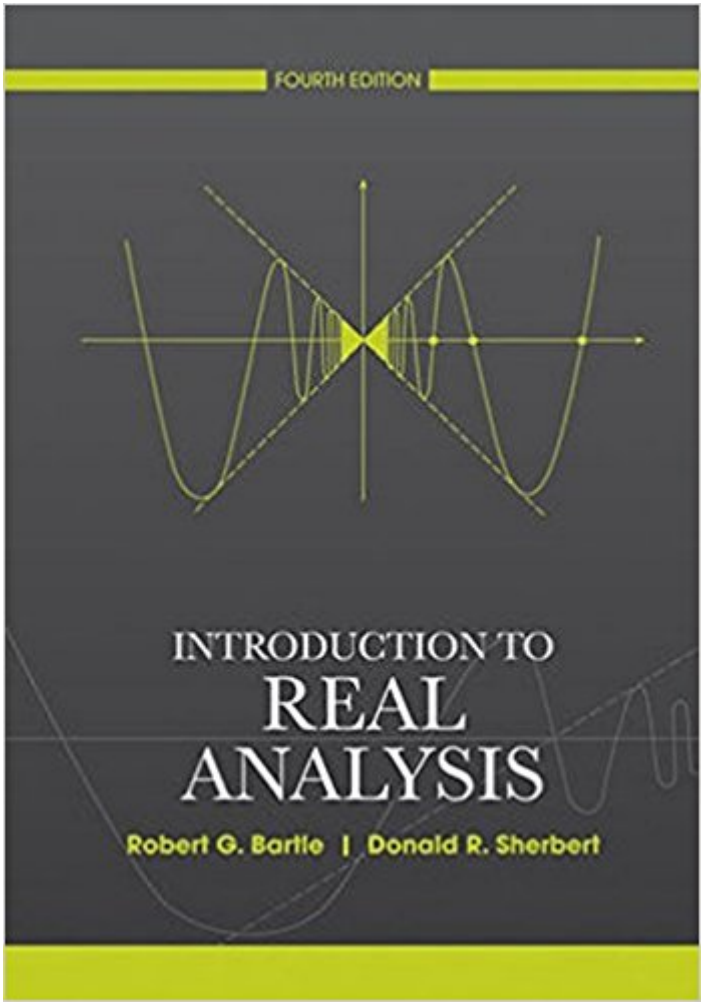
Introduction To Real Analysis



Synopsis

This text provides the fundamental concepts and techniques of real analysis for students in all of these areas. It helps one develop the ability to think deductively, analyse mathematical situations and extend ideas to a new context. Like the first three editions, this edition maintains the same spirit and user-friendly approach with addition examples and expansion on Logical Operations and Set Theory. There is also content revision in the following areas: introducing point-set topology before discussing continuity, including a more thorough discussion of limsup and limimf, covering series directly following sequences, adding coverage of Lebesgue Integral and the construction of the reals, and drawing student attention to possible applications wherever possible.

Book Information

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Customer Reviews

Excellent

RudinÃ¢Â Â™s book had been my undergraduate analysis text and first decent exposure to this branch of mathematics no doubt intended to cultivate its students into seasoned thinkers familiar with the techniques for constructing formal proofs. While Rudin claims it may be pedagogically unsound though logically correct to start off the construction of the real numbers from the rational ones, this book follows suit with a similar preliminary discussion on both algebraic and order properties of R leading into the next section on the least-upper-bound property as one form of the completeness axiom for the real numbers (sometimes referred to as Dedekind completeness, which can also be used to prove other fundamental results of analysis including the Bolzano-Weierstrass

theorem and Heine-Borel theorem as you will see in later sections). There is also a discussion on intervals at the end of the chapter that explores the properties of nested intervals and concludes with CantorÃ¢Â Â™s second proof of the uncountability of R.This book is tantalizingly similar to RudinÃ¢Â Â™s with regards to how the topics are organized. However, it takes a more exhaustive look into the material by offering much needed explanations that Rudin sought to discard in accordance with his summarized, do-it-yourself style of writing. I would therefore consider this book to be an actual introduction to real analysis with some important results presented at a medium level of generality, accompanied by several examples and exercise problems. In the section on improper and Lebesgue integrals, the authors establish an important result that show how the limiting processes are not necessary when one deals with the generalized Riemann integral - a topic that transitions nicely into HakeÃ¢Â Â™s Theorem. While the theorem itself is very difficult to prove, the authors manage to provide a lot of insight into the material that provide motivation for more rigorous study.In fact, you will see that the version of HakeÃ¢Â Â™s Theorem for functions in R*[a,inf) is of particular importance in the subsequent section on infinite intervals. Towards the end of the book, there is a brief foray into topology with sections on compact sets and metric spaces, which you will no doubt revisit in a second/grad course in analysis. I think the authors made a valiant effort in addressing some pretty abstract concepts presented in RudinÃ¢Â Â™s book that would otherwise take sheer force of will to master. I used it alongside RudinÃ¢Â Â™s text, which made the arduous process of guided discovery somewhat tolerable but nothing short of rewarding by the end of the course.

For undergraduate students, this book is one of the best introduction to Real Analysis. The nice thing about this book is there are many good examples for each Theorem which help you reinforce what you just read. I’ve been using this book for my first course in Introduction to Analysis, and I’m in love with it. The structure of the book is also very organized, and exercises are very relevant to each chapter. Excellent book for Introduction to Real Analysis.

This book provides a solid introduction to real analysis in one variable. The first two chapters introduce the basics of set theory, functions and mathematical induction. Also, the properties of real numbers are introduced here "borrowing" the concept and properties of field from abstract algebra.The following chapters deal with sequences and series of numbers, limits, continuity, differentiation, integration, sequences and series of function, in this order.I think the material is presented clearly and the results are proven rigorously throughout the entire book. There are a lot of

worked-out examples and many exercises that will test the reader’s understanding. Solutions and hints to many (notice, not only the odd ones) of the problems are given in the back of the book. There is also an appendix on logic for those who might need to review the basics, and one on metric spaces and Lebesgue integrals for those students who want to go a bit farther.In my opinion, this book is not as good as Rudin’s book, but it does the job better than many other introductory books on the same topic. For a horrible book see Jiri Lebl’s text.Real analysis is hard, independently of the book you use. It requires a lot of care and hard work. This book does the best it can at clearing the path for you.

I’m skeptical of all the 5 star reviews this book has. I would venture to guess that most of those reviews are coming from students who haven’t read other introductory Analysis texts, and so they don’t have any reference points outside of it.The text is certainly not terrible, but it strikes me as a typical example of what you can expect from the textbook industry. Quantity over quality. The material covers a lot of ground, but with very little emphasis on clarity. Statements such as "it follows from theorem a that x implies y" are littered in examples throughout the text, with no further explanation on why "it follows." In some cases, when new concepts are introduced, I would have had no idea what the Authors’ were talking about had I not previously reviewed the concept in a better text (such as Abbot’s Understanding Analysis). I would expect this in more advanced texts, but not one that has "Introduction" in its title.It’s not that I expect Analysis to be easy. I just find texts like this to be wasteful of students time, because while you can eventually grasp the material, the task could have been quicker.

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