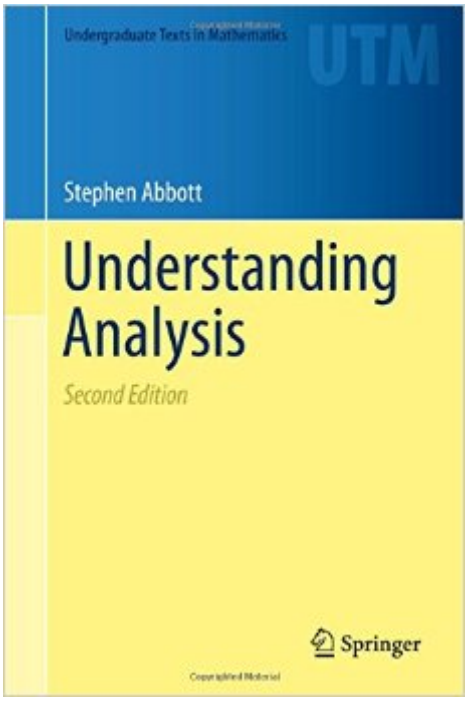
Understanding Analysis (Undergraduate Texts In Mathematics)



Synopsis

This lively introductory text exposes the student to the rewards of a rigorous study of functions of a real variable. In each chapter, informal discussions of questions that give analysis its inherent fascination are followed by precise, but not overly formal, developments of the techniques needed to make sense of Â them. By focusing on the unifying themes of approximation and the resolution of paradoxes that arise in the transition from the finite to the infinite, the text turns what could be a daunting cascade of definitions and theorems into a coherent and engaging progression of ideas. Acutely aware of the need for rigor, the student is much better prepared to understand what constitutes a proper mathematical proof and how to write one.Fifteen years of classroom experience with the first edition of Understanding Analysis have solidified and refined the central narrative of the second edition. Roughly 150 new exercises join a selection of the best exercises from the first edition, and three more project-style sections have been added. Investigations of Eulerâ ™s computation of Î¶(2), the Weierstrass Approximation Â- Theorem, and the gamma function are now among the bookâ ™s cohort of seminal results serving as motivation and payoff for the beginning student to master the methods of analysis.Review of the first edition:â œThis is a dangerous book. Understanding Analysis is so well-written and the development of the theory so well-motivated that exposing students to it could well lead them to expect such excellence in all their textbooks. â | Understanding Analysis is perfectly titled; if your students read it, thatâ ™s whatâ ™s going to happen. â | This terrific book will become the text of choice for the single-variable introductory analysis course â | â • Â Â â • Steve Kennedy, MAA Reviews Â Â Â Â Â Â Â Â Â Â

Book Information

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Average Customer Review: 4.5 out of 5 starsÂ Â See all reviewsÂ (77 customer reviews)

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Customer Reviews

If you’re attempting to learn real analysis in one dimension, Abbott’s Understanding Analysis is a great place to start. It is everything that a math textbook used for instruction should be: it has clean, concise prose, it assumes modest jumps in understanding, and it includes a good selection of exercises. Additionally, Abbott’s book maintains a conversational tone without watering down the formality at the center of the mathematics while managing to convey the feeling of seeing "the big picture". Yes, there are more complete treatments (Rudin, Bartle, Browder, etc), but none of them are nearly as accessible, and frankly they aren’t as good at providing an introduction to the subject.This last statement may cause cries of anguish from mathies everywhere, as I’ve just suggested that there are some ways in which this book is better than Rudin’s Principles of Mathematical Analysis. Rudin’s texts (and most other upper division and graduate math texts that I’ve read) seem to fall into the same pedagogical trap: they assume that the student is already familiar with the material, but they may need a quick reminder of the particulars. This is, of course, not generally the case, so the student is left to fill in whatever gaps exist, hopefully with the aid of an instructor. Indeed, there is a sort of book for which this strategy is ideal: a reference. For this use, Rudin is spectacular. For actually learning the material for the first time, it is useful to have a bit of guidance, a bit of context, and a bit of direction. It is as if many math authors have forgotten a time where they didn’t thoroughly understand the material, or worse, that they have somehow conflated the pain that they experienced as students while trudging through poorly realized texts with learning the material!

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