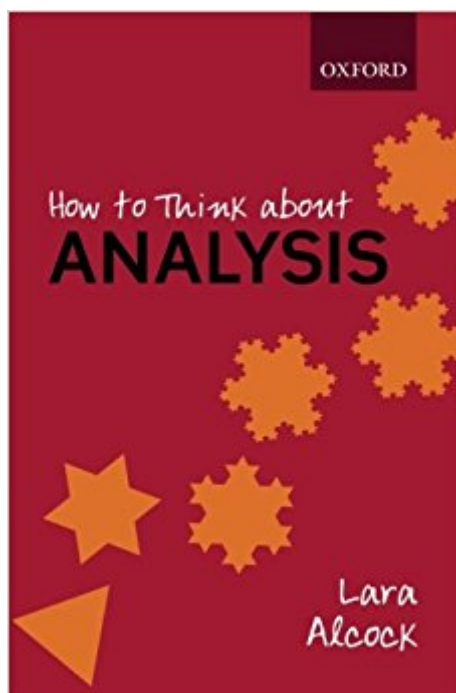


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How To Think About Analysis



Synopsis

Analysis (sometimes called Real Analysis or Advanced Calculus) is a core subject in most undergraduate mathematics degrees. It is elegant, clever and rewarding to learn, but it is hard. Even the best students find it challenging, and those who are unprepared often find it incomprehensible at first. This book aims to ensure that no student need be unprepared. It is not like other Analysis books. It is not a textbook containing standard content. Rather, it is designed to be read before arriving at university and/or before starting an Analysis course, or as a companion text once a course is begun. It provides a friendly and readable introduction to the subject by building on the student's existing understanding of six key topics: sequences, series, continuity, differentiability, integrability and the real numbers. It explains how mathematicians develop and use sophisticated formal versions of these ideas, and provides a detailed introduction to the central definitions, theorems and proofs, pointing out typical areas of difficulty and confusion and explaining how to overcome these. The book also provides study advice focused on the skills that students need if they are to build on this introduction and learn successfully in their own Analysis courses: it explains how to understand definitions, theorems and proofs by relating them to examples and diagrams, how to think productively about proofs, and how theories are taught in lectures and books on advanced mathematics. It also offers practical guidance on strategies for effective study planning. The advice throughout is research based and is presented in an engaging style that will be accessible to students who are new to advanced abstract mathematics.

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Customer Reviews

"This book is an invaluable guide for any undergraduate student taking Analysis... It is written using a friendly and informal tone yet carefully emphasizes and demonstrates the importance of paying attention to the details. It is an excellent read and is highly recommended for anyone interested in Analysis or any area of pure mathematics." --MAA Reviews

"This is a nice little book with an accurate title... Recommended." --Choice

"How to Think about Analysis [is] a very effective and helpful book, a book which should be on every undergraduate reading list and should be available to potential mathematics undergraduates in schools." --Mathematics in School

"How to Think about Analysis offers several insights into the best practices to use when studying upper-level mathematics. Not only are these insights helpful to students, but they could also prove helpful to teachers of earlier courses; modifying and incorporating some of these practices into earlier courses may better prepare their students for future mathematics coursework." --Mathematics Teacher

Lara Alcock, Senior Lecturer, Mathematics Education Centre, Loughborough University

Lara Alcock is a Senior Lecturer in the Mathematics Education Centre at Loughborough University. She studied Mathematics to Masters level at the University of Warwick before going on to doctoral study in Mathematics Education at the same Institution. She spent four years as an Assistant Professor in Mathematics at the Graduate School of Education at Rutgers University in the USA, and two as a Teaching Fellow in Mathematics at the University of Essex in the UK before taking up her present position. In her current position she teaches undergraduate Mathematics, works with PhD students in Mathematics Education, and conducts research studies on the ways in which people learn, understand and think about abstract mathematics. She has been awarded National Teaching Fellows of 2015 by The Higher Education Academy.

Amazing Book! If you are feeling lost or a bit behind in Real Analysis then you need to buy this book immediately! I read this book over a period of 6 days and feel in control of the semester again. The way the author breaks down all of the topics of introductory Analysis through Integration especially how to approach proofs really sets this book apart from others of it's kind. If you read this book diligently especially the chapter on proofs in Analysis your life will be changed. At the end of chapter 3 the author shows step by step how to read and understand a proof, Ingrain this section wholly and I promise you it will be a magic bullet for proof reading/writing. My getting a degree in math felt as though it were on the rocks and this book has got me on my feet again. Do yourself a favor, pick up this book and get on the road to Real Analysis.

Splendid book!, it's a pity that I had not had this book in my hands when I was student. I would save a lot of night of nightmare with Math Analysis, Nobody explain this subject with so much patience, rigor and sweetness as Lara Alcock do, I really love her!, a pleasure for the mind.

This is a must-have book for anyone taking Analysis or abstract math in general. The combination of clear exposition and insight into the psychology of thinking correctly (and incorrectly) about math allows the reader to develop mathematical maturity and confidence.

Extremely useful book. Made sense of a complex class and gave me confidence to move forward. Highly recommended.

A nice book for a student to see a higher level approach, to see why and how things are done. It also serves as a nice refresher for those who have been away from Math (like myself) for a while. The explanations are simple enough that if you have taken some advanced Math courses before, it is very nice to have. If you are one trying to learn theories, probably not the book you'd start with, as I think you'll be doing yourself injustice by not getting more in-depth explanations.

I loved this book. It explains the topics of analysis in an informal way. It walks you through the proofs step by step. It doesn't go in depth, but is a great supplement to have while taking an undergraduate analysis course.

Excellent book!

Just outstanding. It don't get no gentler than this. Well-organized, well-written by an experienced lecturer. Great book, great place to start.

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