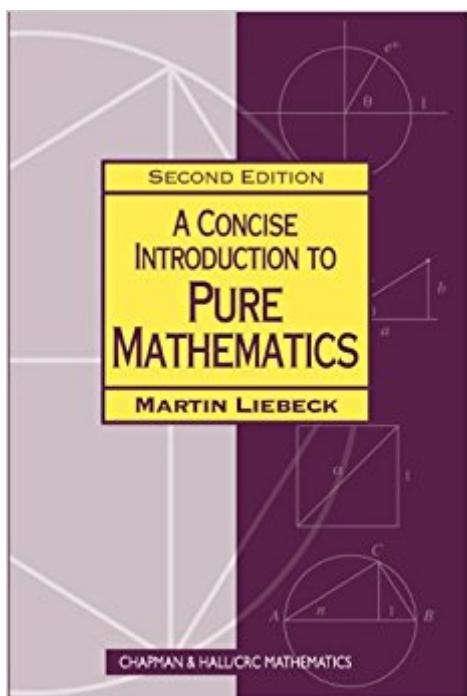


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# A Concise Introduction To Pure Mathematics (Chapman Hall/Crc Mathematics)



## Synopsis

A Concise Introduction to Pure Mathematics, Second Edition provides a robust bridge between high school and university mathematics, expanding upon basic topics in ways that will interest first-year students in mathematics and related fields and stimulate further study. Divided into 22 short chapters, this textbook offers a selection of exercises ranging from routine calculations to quite challenging problems. The author discusses real and complex numbers and explains how these concepts are applied in solving natural problems. He introduces topics in analysis, geometry, number theory, and combinatorics. What's New in the Second Edition: Contains extra material concerning prime numbers, forming the basis for data encryption Explores "Secret Codes" - one of today's most spectacular applications of pure mathematics Discusses Permutations and their importance in many topics in discrete mathematics The textbook allows for the design of courses with various points of emphasis, because it can be divided into four fairly independent sections related to: an introduction to number systems and analysis; theory of the integers; an introduction to discrete mathematics; and functions, relations, and countability.

## Book Information

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## Customer Reviews

A gentle but fascinating introduction into the culture of mathematics; This book will give a student the understanding to go on in further courses in abstract algebra and analysis. The notion of a proof will no longer be foreign, but also mathematics will not be viewed as some abstract black box. At the very least, the student will have an appreciation of mathematics. As usual, Liebeck's

writing style is clear and easy to read. This is a book that could be read by a student on his or her own. There is a wide selection of problems ranging from routine to quite challenging. Robert Guralnick, Chair of the Mathematics Department, University of Southern California, from the Foreword

Cool book! I enjoy reading so-called pure math, though I must admit to some disappointment whenever I open such a book and find that it's full of . . . numbers! Any mathematician will tell you that math isn't about the objects (of which numbers are a tiny subset) but about the rules for combining those objects. This being said, there's a lot to enjoy in this book. I also recommend George Exner's *An Accompaniment to Higher Mathematics*. That really does take a more "pure" approach to this world. Maybe most fun (?) of all is *The Princeton Companion to Mathematics* edited by Timothy Gower, a very well-bound book that interlaces so many different fields of math, with excellent introductions, and a 1,000 page hardcover bargain at \$84!

I have not yet finished the book. However, so far every chapter introduces and reviews a familiar concept, and gradually takes it to a whole new level. A lot of the book deals with proofs, starting with simple statements and using those proofs to go further in depth. There is a wonderful bit of humor in each lesson, and a lot of the questions at the end of each chapter are really thought-provoking (answers are only given to odd numbered problems). Although this probably sounds a bit cheesy, this book has already given me a greater appreciation of the beauties and wonders of math.

I am currently around halfway through this book and have learned a lot from it. While I'd like to write a more formal review I am mostly posting this to ask a question as it is seemingly the only forum to do so. The fifth exercise in chapter seven asks the reader to "Show that  $\cos(2\pi/9)$  is a root of the cubic equation  $8x^3 - 3x + 1 = 0$ ". Unless my brain has fallen out entirely  $\cos(2\pi/9)$  is not a root of the given cubic. What was this meant to say or alternatively what obvious mistake am I making?

not perfect state

Excellent book. Outstanding introduction to pure mathematics. I also have the second edition, I bought the third edition mainly because it has answers to odd number problems.

This short little book is very thorough and challenging, I am still reading it so I can't be more

conclusive than that

This is a review of the (2005) 2nd ed. The number of texts covering the transition from secondary school to college mathematics has grown considerably in recent years. This is one of the better-written and well-organized texts. Its greatest concentration is on important concepts from pure mathematics, such as sets and numbers, real and complex, and some interesting topics from number theory. Explanations are clear and the in-text examples and proofs are well chosen and explained. The emphasis here is primarily on proofs rather than on the solution of applied problems. The author uses only the minimum level of mathematical rigor required, and this is supplemented by clear discussions. I enjoyed the gentle introduction to set theory and the in-text questions, followed by solutions. The proofs of propositions are clear and complete. The Forward says this book can "be read by a student on his or her own". The Preface restates this slightly differently, by saying that as "well as being designed for use in a first university course, the book is also suitable for self-study". However, debatably, this text does not serve both purposes equally well, as it seems less suitable for a self-study target audience. A "Solutions Manual for a Concise Introduction to Pure Mathematics" is listed on-line. The Solutions Manual described is about 70 pages in length. If this is correct, it's contents could easily have been included with this text, while still keeping the text relatively concise at less than 300 pages. At the time of this review, this manual was not available from or other on-line sellers. The lack of fully-worked solutions to exercises is typical of many books designed for classroom use. This allows faculty to assign problems that students must work out on their own, as solutions are not readily available. While this approach is, arguably, appropriate for a classroom environment, the lack of detailed exercise solutions considerably reduces the value of this text for self-study. Mathematics is not a spectator sport, so the opportunity to work through a considerable variety of problems and check results against detailed solutions is quite important, particularly for self-study. The lack of fully-worked exercise solutions is perhaps the key deficiency of this text. However, it is enjoyable to read, with explanations that are very well done. Thus, although not self-contained, it could be excellent for self-study if supplemented appropriately with a problems book with fully-worked solutions.

This is going to be my text book. This is much cheaper than in the book store of my university. I really like the topic.

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