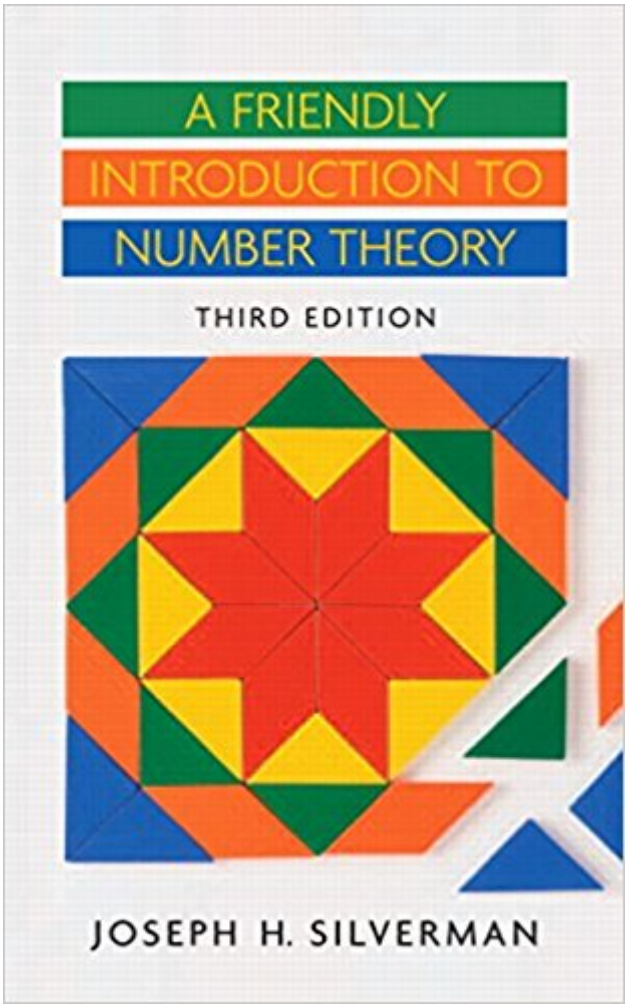
A Friendly Introduction To Number Theory (3rd Edition)



Synopsis

Starting with nothing more than basic high school algebra, this volume leads readers gradually from basic algebra to the point of actively performing mathematical research while getting a glimpse of current mathematical frontiers. Features an informal writing style and includes many numerical examples. Emphasizes the methods used for proving theorems rather than specific results. Includes a new chapter on big-Oh notation and how it is used to describe the growth rate of number theoretic functions and to describe the complexity of algorithms. Provides a new chapter that introduces the theory of continued fractions. Includes a new chapter on Ã¢â ¬Å“Continued Fractions, Square Roots and PellÃ¢â ¬â„¢s Equation.Ã¢â ¬Â• Contains additional historical material, including material on PellÃ¢â ¬â„¢s equation and the Chinese Remainder Theorem. A useful reference for mathematics teachers.

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Customer Reviews

This is an introductory undergraduate text designed to entice non-math majors into learning some mathematics, while teaching them to think mathematically at the same time. Starting with nothing more than basic high school algebra, the reader is gradu ally led from basic algebra to the point of actively performing mathematical research while getting a glimpse of current mathematical frontiers. The writing style is informal and includes many numerical examples which are analyzed for patterns and us ed to make conjectures. The emphasis is on the methods used for proving theorems rather than on specific results. --This text refers to an out of print or unavailable edition of this title.

This introductory text is designed to entice non-math focused individuals into learning some mathematics, while teaching them to think mathematically. Starting with nothing more than basic high school algebra, the reader is gradually led from basic algebra to the point of actively performing mathematical research while getting a glimpse of current mathematical frontiers. The writing style is informal and includes many numerical examples, which are analyzed for patterns and used to make conjectures. The emphasis is on the methods used for proving theorems rather than on specific results. Pythagorean Triples, Linear Equations and the Greatest Common Divisor, Factorization and the Fundamental Theorem of Arithmetic, Congruences, Mersenne Primes, Squares Modulo p, Quadratic Reciprocity, Pell's Equation, Diophantine Approximation, Irrational Numbers and Transcendental Numbers, Sums of Powers, Binomial Coefficients and Pascal's Triangle, Elliptic Curves and Fermat's Last Theorem. For individuals with limited math experience who are interested in number theory. --This text refers to an out of print or unavailable edition of this title.

The book is just fantastic in doing what the author has set out to do, i.e. introducing number theory to non-professionals. If only all introductory books in mathematics (and on many other scientific subjects, for that matter) were written like this one, then the world would have ten times more enhusiastic mathematicians (and scientists) at work.At the level intended this is the best written book I have read on the subject for its unique style and charm in attracting people to think about mathematical problems. It shows exactly that you can do quite good mathematics without the heavy and sometimes killing apparatus of formality that is used in many other (boring) books. Mathematics (and other sciences too) is about ideas, not formal procedures. It is not for its formal aspect that - for instance - Feynmann's book is highly regarded in physics, and in a sense this text reminds me of that book in physics (my profession).People are attracted to study and use their own brains through simple, engaging and understandable explanations of clever ideas, not by pedantic explanations of surely correct but obscure theorems.At simplicity this book is a charm.

Pretty straightforward. The only drawback is that there's not that may problems to do after you've finished the chapter. The only way the material can sink in is by repetitious problems, but if you can find problems from elsewhere that you can do then you're in pretty good shape to learn from this book.

I'm a bit shocked by the bad reviews of this book. I guess if a book is clear, understandable, and interesting it doesn't qualify as a worthy math book. I've noticed this in other math book reviews,

there seems to be a real element of machismo among alot of mathematicians, if the book is very formal usually theorem proof theorem it gets high marks. If the book is like this, one where the author is clear and engaging the book is discounted. I personally found this book to be one of the great intellectual adventures of my life, but here again in college I only minored in math not majored.

I think its a brilliant introduction to someone like myself, who teaches high school maths to some very able students who may well go on to undergraduate maths courses.My first degree was in engineering, so I havent had the priviledge of a second level number theory course.. Its ideal! I love the conversational style.. and there are recommendations of books with more rigour, but dont be fooled into thinking this is easy.. Its a demanding read, at least I think so.

The book was ok. Pretty straightforward. The only drawback is that there’s not that may problems to do after you’ve finished the chapter. The only way the material can sink in is by repetitious problems, but if you can find problems from elsewhere that you can do then you’re in pretty good shape to learn from this book.

Okay, so I used this book in a semester-long course in elementary number theory. It’s totally useless. Aside from the fact that the writing style is too chatty and to some extent patronizing, here’s my main problem with this book:The text gives minimal explanations of things -- basically it states a theorem, gives a few practical examples of why the theorem is true, then gives a chatty proof of said theorem. That’d be fine, but when you get to the exercises, you’re left thinking, "huh?" The problems are either mind-numbingly routine or they are insanely beyond the scope of the text, requiring proofs of things that are MAJOR THEOREMS IN ELEMENTARY NUMBER THEORY with absolutely no context, hints, or help. Granted, the instructor of the course gave hints/direction for a lot of these problems, but without a good professor’s guidance, good luck trying to prove major theorems all on your own for homework!Yeah, don’t use this book. It’s just not very helpful to the student and should only be used if the course requires it AND you have a knowledgeable instructor who can give good guidance.

I am a working oceanographer with a physics background who is interested in browsing through various areas of mathematics, particularly ones like number theory which are not a common part of a physicist’s background. I picked up and read Dr. Silverman’s "Friendly Introduction to Number Theory" and was thoroughly charmed. The book presented many of the basic results of number

theory in a clear, concise fashion, and also gave a bit of context and background to the results. Basis computations for "non-experts" are stressed, and the reader for whom this book was intended goes away with a nice feeling of having picked up a bit of knowledge of a new topic. I would also add my voice to those who chided the math majors for panning this book. There are plenty of high level "theorem-proof" books out there for mathematicians, and to criticise a book that popularizes mathematics is both snobbish and counterproductive. We should heartily applaud and value good popularizations of science and technology. This book is a first rate popularization.

I very much enjoyed this book. The book is indeed an excellent and "friendly" introduction to number theory. Dr. Silverman writes in a conversation style. I felt like I had a friendly tutor standing over my shoulder explaining not only how the mathematics worked, but, more importantly, why the topics he described or was about to describe are important and their relevancy in either the world of mathematics or in the "real" world. While he has very few "formal" proofs compared to most number theory texts, Dr. Silverman thoroughly works through numerous numerical examples to give the reader a "feel" for what is going on.I was particularly pleased with Dr. Silverman’s chapter explanation of why quadratic residues are important and how they are used.Dr. Silverman presents introductory explanations of a number of frequently mentioned number theory topics such as Mersenne Primes, number sieves, RSA cryptography, elliptic curves. He ties together lucid explanations of Pythagorean triples, x2 + y2 = z2, x4 + y4 = z4, and elliptic curves to build to an explanation of Wiles proof of Fermat’s Last Theorem.

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