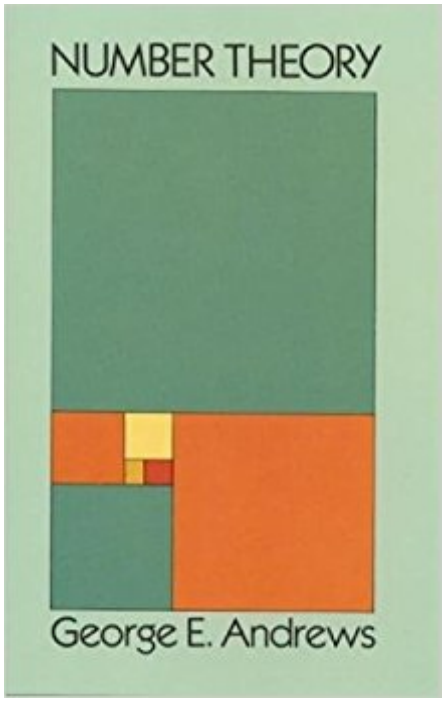
Number Theory (Dover Books On Mathematics)



Synopsis

Although mathematics majors are usually conversant with number theory by the time they have completed a course in abstract algebra, other undergraduates, especially those in education and the liberal arts, often need a more basic introduction to the topic.In this book the author solves the problem of maintaining the interest of students at both levels by offering a combinatorial approach to elementary number theory. In studying number theory from such a perspective, mathematics majors are spared repetition and provided with new insights, while other students benefit from the consequent simplicity of the proofs for many theorems.Among the topics covered in this accessible, carefully designed introduction are multiplicativity-divisibility, including the fundamental theorem of arithmetic, combinatorial and computational number theory, congruences, arithmetic functions, primitive roots and prime numbers. Later chapters offer lucid treatments of quadratic congruences, additivity (including partition theory) and geometric number theory.Of particular importance in this text is the author’s emphasis on the value of numerical examples in number theory and the role of computers in obtaining such examples. Exercises provide opportunities for constructing numerical tables with or without a computer. Students can then derive conjectures from such numerical tables, after which relevant theorems will seem natural and well-motivated..

Book Information

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Customer Reviews

The Holy Grail of Number TheoryGeorge E. Andrews, Evan Pugh Professor of Mathematics at Pennsylvania State University, author of the well-established text Number Theory (first published by Saunders in 1971 and reprinted by Dover in 1994), has led an active career discovering fascinating

phenomena in his chosen field Ã¢â ¬â • number theory. Perhaps his greatest discovery, however, was not solely one in the intellectual realm but in the physical world as well. In 1975, on a visit to Trinity College in Cambridge to study the papers of the late mathematician George N. Watson, Andrews found what turned out to be one of the actual Holy Grails of number theory, the document that became known as the "Lost Notebook" of the great Indian mathematician Srinivasa Ramanujan. It happened that the previously unknown notebook thus discovered included an immense amount of Ramanujan's original work bearing on one of Andrews' main mathematical preoccupations Ã¢â ¬â • mock theta functions. Collaborating with colleague Bruce C. Berndt of the University of Illinois at Urbana-Champaign, Andrews has since published the first two of a planned three-volume sequence based on Ramanujan's Lost Notebook, and will see the project completed with the appearance of the third volume in the next few years. In the Author's Own Words:"It seems to me that there's this grand mathematical world out there, and I am wandering through it and discovering fascinating phenomena that often totally surprise me. I do not think of mathematics as invented but rather discovered." Ã¢â ¬â • George E. Andrews

I recently took a one-semester course using this text. I found it to be one of the best textbooks I've used so far. The exposition was clear and easy to digest, with just the right number of clarifications and examples. The exercises were numerous, challenging and illuminating. No background beyond very basic set theory is assumed, and in fact the writer goes very far out of his way to keep his exposition separate from abstract algebra. This is most evident in the chapter on primitive roots. I can't speak for the second half of the book, on additivity, but I can say with certainty that the first nine chapters are worth the effort.

The presentation is consistent and if you don't fight it, brings back pleasant memories. I remember being afraid of the notation, did I really understand it? There are multiple levels of abstraction to deal with. They pop up at odd times during a reading. Keep going until no new meanings jump out at you, then put it down, wait awhile and read it again. It's nice not to worry about an examination or presentation of the material.

George Andrews is the reigning expert on partitions in the mathematical community who has written many seminal papers on the subject over the past half-century! If you don't know what partitions are in the theoretical sense, don't worry, the text provides ample introduction. I don't think you can find a more elementary introduction to the difficult, but extraordinarily powerful and elegant theory of

partitions. The book covers the basics of number theory well, but it is the chapters on partitions that make this text stand out. It covers the Rogers-Ramanujan identities as well as the Jacobi triple product identity. It is rare in the mathematical community that an expert in a subject also writes a ground-level introductory text - but that’s what you have here. Thanks to the dover edition, it’s now quite affordable.

I had a number theory class back in the dark ages when i was studying Mathematics at OSU. Before I started this book I reviewed another number theory book. It was like deja vu - the method was exactly what I had seen before. In fact, it may have been the same book. Then I picked this up to go a little more in depth. I was a little thrown off at first. Pretty much the same things were covered but from such a vastly different angle it almost seemed like a whole different field of mathematics.I can’t say which viewpoint is the correct one (they both are, I guess) but, since the books are so inexpensive, I would suggest try each or using both. It is often eye-opening to see the same conclusion derived from attacking the problem from more than one angle.

The text is well-written, starting from simple motivational numerical examples, andleading to deeper insight of the subject.The use of computer-aided analysis is well-worth noting, since such calculating devices are commonly available.The chosen examples are simple and allowthe text to be used also for self-study purposes.Highly recommended!

I love number theory but this book exposed me to combinatorics, which I though was the theory of permutation. So now I have a new interest. Book is new and shipped in quick time with good wrapping and perfect shape.Great seller and who could not love Dover Publications?

This is one of the classic texts on Number Theory. It is a challenging book for anyone. The problem sets range from easy to hard. There are some hints, but those are few and far between. Like most Dover math books, it’s dry and concise. There are better books on the market, but not for this price.

You simply can not beat the content for the price!One huge complaint though for the Kindle Edition. On the big iPad Pro, some formulas are just about unreadable. The formulas appear to be images and their size can not be adjusted with the text size adjustment. The resolution on these formula image is so poor that some of the small parts of the formula, like subscripts and superscripts are simply unreadable. I’ve taken to trying to use a magnifying glass to help read some formulas, but

that is simply not an enjoyable reading experience.

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