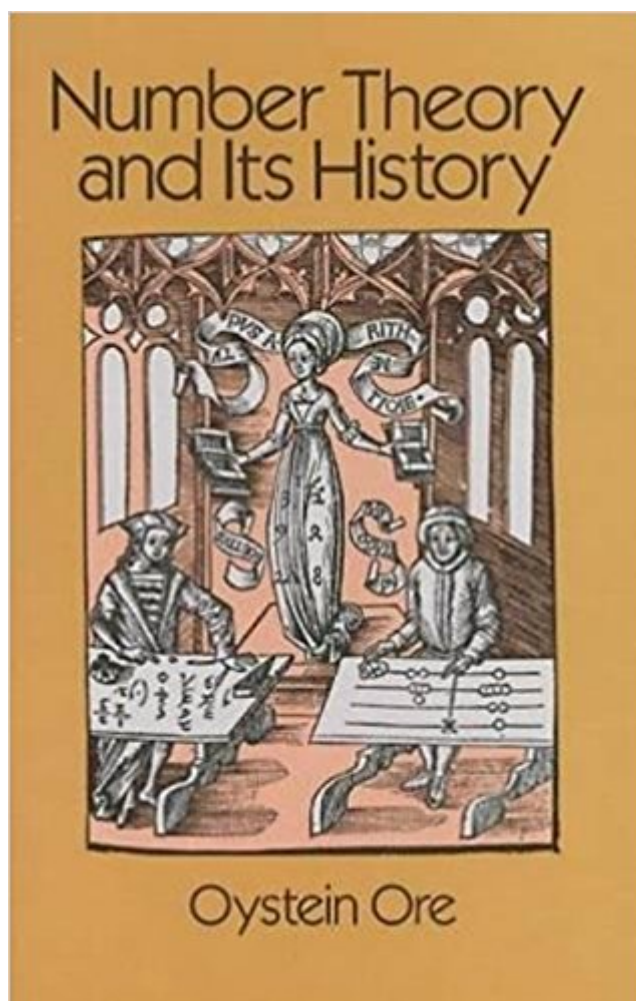


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# Number Theory And Its History (Dover Books On Mathematics)



## Synopsis

"A very valuable addition to any mathematical library." — School Science and MathThis book, written by a prominent mathematician and Sterling Professor of Mathematics at Yale, differs from most other books on number theory in two important ways: first, it presents the principal ideas and methods of number theory within a historical and cultural framework, making the subject more tangible and easily grasped. Second, the material requires substantially less mathematical background than many comparable texts. Technical complications and mathematical requirements have been kept to a minimum in order to make the book as accessible as possible to readers with limited mathematical knowledge. For the majority of the book, a basic knowledge of algebra will suffice. In developing the importance and meaning of number theory in the history of mathematics, Professor Ore documents the contributions of a host of history's greatest mathematicians: Diophantos, Euclid, Fibonacci, Euler, Fermat, Mersenne, Gauss, and many more, showing how these thinkers evolved the major outlines of number theory. Topics covered include counting and recording of numbers, the properties of numbers, prime numbers, the Aliquot parts, indeterminate problems, theory of linear indeterminate problems, Diophantine problems, congruences, analysis of congruences, Wilson's Theorem, Euler's Theorem, theory of decimal expansions, the converse of Fermat's Theorem, and the classical construction problems. Based on a course the author gave for a number of years at Yale, this book covers the essentials of number theory with a clarity and avoidance of abstruse mathematics that make it an ideal resource for undergraduates or for amateur mathematicians. It has even been recommended for self-study by gifted high school students. In short, *Number Theory and Its History* offers an unusually interesting and accessible presentation of one of the oldest and most fascinating provinces of mathematics. This inexpensive paperback edition will be a welcome addition to the libraries of students, mathematicians, and any math enthusiast.

## Book Information

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## Customer Reviews

I read this book when I was a senior in high-school. It is a very well written history and exposition of elementary number theory. I found it fascinating. This book certainly contributed to my later decision to study mathematics and become a number theorist. I recommend it with enthusiasm to any young man or woman with an interest in mathematics. However, beware, you might get hooked.

I teach mathematics at the University. It was a "graduation gift" for a student. Its ok, but not great. I found the writing a bit turgid.

The history of numbers. If you want to understand encryption, this is a great place to start. It is an awesome read.

I was hoping for more history of math thought and less actual math. Otherwise, a great book.

A agree with somebody that the history didn't provide much in teaching number theory. John Stillwell's "Elements of Number theory" is more successful. Oystein's book partly tries to show the historical development; but, he's always introducing concepts that only make sense or are proved in more advanced settings like the 'trivial factors' (both the minus and positive versions of the same divisor).  $4K+1$  theorem is introduced. He mostly tries to only get into pre-Gaussian number theory, but ends up talking a lot about congruence number theory. In fact, compared to John Stillwell, I like this book for Oystein's much more thorough introduction to congruence integers. Also compared to John Stillwell, Oystein goes through Fermat's infinite descent method a lot better. And yet, Oystein mentions things like Leonard Euler's zeta function and some other post-gaussian number theory. It's a weird book like that. I also like Oystein's treatment of Euclid's algorithm and the general solution of linear number theory equations over John Stillwell's. All in all, it's a good valuable book, but hardly historically accurate; or he mixes modern mathematics up with old to make the old easier to handle (as does John Stillwell). Oystein's book is better for pre-gaussian number theory imo over

John Stillwells. John Stillwell's book is better for an easy introduction to post-gaussian number theory. For a better introduction to the issues of ancient number theory see Van Der Waerden's almost anything, but generally "Science Awakening", and Thomas Heath's "A History of Greek Mathematics" volume 1 and 2 really for the Diophantine analyses. I haven't read Andre Weil's book which is probably the best overall technical history of number theory. Something that isn't said by Oystein but if you have read ahead somewhere is that Dirichlet used Euclid's algorithm to make a clearer presentation of Frederick Gauss's revolutionary work on number theory. This is the tool Oystein Ore uses to present number theory easily. Oystein's historical origins of diophantine analyses is also actually kind of valuable. He hints at how some number theory problems are more like open ended spaces and others more like compact spaces and the idea of infinity. There's pluses and minuses with just about every book, but the pluses may outweigh the minuses in all cases. It's a little frustrating for someone trying to learn the real mathematics from some generic school text; but, they are worth it.

This book is one to own and read even if you are past the academic stage of learning the material. As far as number theory, this is a great instructional text. It is more of an intro. Granted most of the material is covered in many other books, this is worth owning for the historical content. I am a big fan of any math book which really puts the historical context with the math. For me it helps understand the why and how a little better. Also math does not really get coverage in philosophy or history books like it should. So this is a timeless classic, and a great intro to number theory.

I had bought this book for my son in high school based on some recommendation. Yesterday I opened the book and without realizing I had finished first 5 chapters and there was no strain of reading mathematics. Ore is able to introduce the topics and theorems very smoothly and sprinkles those with anecdotes providing a nice backdrop for such serious topic. He has really worked hard to cover the basics of the Number Theory in a manner that is easily digestible by a high school level math student. I would recommend this book as the first book on Number Theory.

Ore's book is an excellent introduction to the fascinating topic of number theory. He takes his time explaining the history of numbers and goes into Euclid's algorithm so smoothly you hardly realize what you've learned. He discusses prime numbers and I was particularly delighted to see diophantine equations explained with lots of examples and an easy to follow method. The book is filled with interesting concepts, lots of examples, and good problems to do on your own. At the end,

for example, Ore talks of how number theory relates to geometry and I wish there were more of that in it. I took this book on a very long trip, worked through many of the problems and simply found it a wonderful companion. If you get it, enjoy. One caution: if you already know some number theory you may find this book too simplistic. Still, it's worth having.

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