



Elementary Number Theory (Textbooks in Mathematics)

By James S. Kraft, Lawrence C. Washington

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Elementary Number Theory takes an accessible approach to teaching students about the role of number theory in pure mathematics and its important applications to cryptography and other areas.

The first chapter of the book explains how to do proofs and includes a brief discussion of lemmas, propositions, theorems, and corollaries. The core of the text covers linear Diophantine equations; unique factorization; congruences; Fermat's, Euler's, and Wilson's theorems; order and primitive roots; and quadratic reciprocity. The authors also discuss numerous cryptographic topics, such as RSA and discrete logarithms, along with recent developments.

The book offers many pedagogical features. The "check your understanding" problems scattered throughout the chapters assess whether students have learned essential information. At the end of every chapter, exercises reinforce an understanding of the material. Other exercises introduce new and interesting ideas while computer exercises reflect the kinds of explorations that number theorists often carry out in their research.

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Bibliography

- Sales Rank: #2054226 in Books
- Published on: 2014-11-24
- Original language: English
- Number of items: 1
- Dimensions: 1.00" h x 6.20" w x 9.30" l, 1.58 pounds
- Binding: Hardcover
- 411 pages

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Editorial Review

Review

"This is a nice introduction to elementary number theory, designed for use in a basic undergraduate course. It can be used also for advanced high school students taking an accessible approach for an independent study. The book underlines the role of number theory in pure mathematics and its applications to cryptography and other areas."

Zentralblatt MATH 1322

About the Author

James S. Kraft teaches mathematics at the Gilman School. He has previously taught at the University of Rochester, St. Mary's College of California, and Ithaca College. He has also worked in communications security. Dr. Kraft has published several research papers in algebraic number theory. He received his Ph.D. from the University of Maryland.

Lawrence C. Washington is a professor of mathematics and Distinguished Scholar-Teacher at the University of Maryland. Dr. Washington has published extensively in number theory, including books on cryptography (with Wade Trappe), cyclotomic fields, and elliptic curves. He received his Ph.D. from Princeton University.

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