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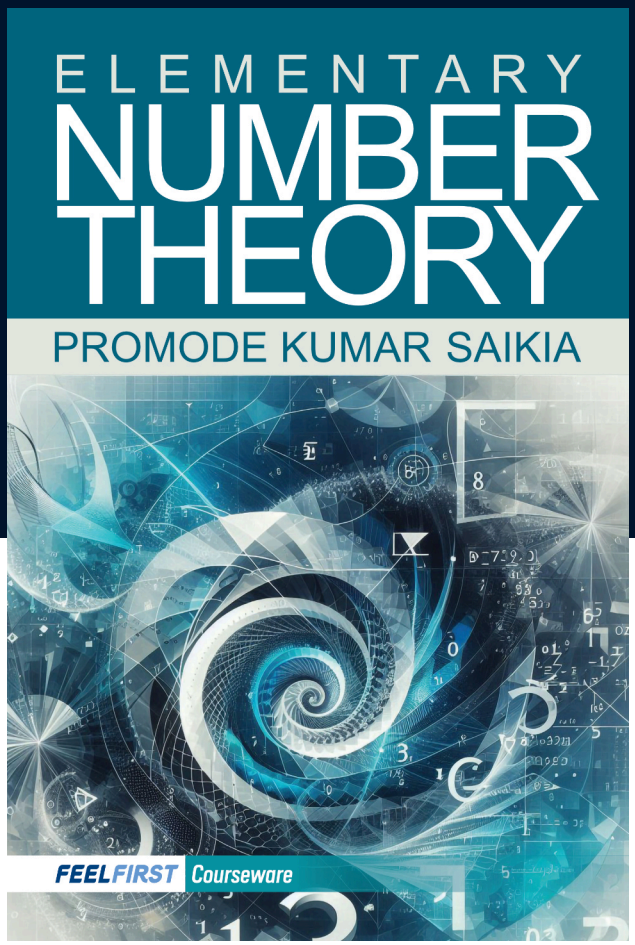

ELEMENTARY NUMBER THEORY

PROMODE KUMAR SAIKIA
(North-Eastern Hill University)

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Secondary Audience: Mathematics Olympiad aspirants

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ABOUT THE BOOK

Elementary Number Theory offers a fresh and engaging exploration of one of mathematics' most timeless and beautiful fields. Designed for master's students and advanced undergraduates, it blends classical insights with modern perspectives to reveal the elegance and power of numbers—from ancient theorems to real-world applications.

Drawing on over a decade of classroom experience, the author presents a carefully sequenced development of topics, beginning with divisibility and congruences, moving through quadratic reciprocity, and culminating in contemporary themes such as cryptography. The text strikes a rare balance between rigour and accessibility, ensuring that readers not only master techniques but also develop a deep appreciation for the subject's underlying ideas.

Notably, the book introduces abstract structures earlier than most standard texts, helping students build a strong conceptual framework from the outset. It also incorporates less commonly covered but highly valuable tools, such as p-adic valuations and matrix methods for continued fractions, which open doors to richer problem-solving strategies.

Richly supported by classroom-tested exercises, worked examples, and intuitive explanations, *Elementary Number Theory* is as effective for guided learning in the classroom as it is for self-study.

SALIENT FEATURES

- Early, intuitive introduction to congruences and p-adic valuations.
- Integrates classical number theory with abstract algebraic methods.
- Elegant coverage of primitive roots, Gaussian integers, and continued fractions using matrix techniques.
- Clear exposition of quadratic reciprocity and its significance.

ABOUT THE AUTHOR

Dr Promode Kumar Saikia has over thirty-three years of teaching experience at North-Eastern Hill University, Shillong. Prior to joining the university, he taught for two years at St Anthony's College, Shillong, following his B.Sc. and M.Sc. in Mathematics from the University of Delhi (1972). He earned his Ph.D. from the University of Wisconsin–Madison, USA, under the supervision of Professor Louis Solomon. His research interests lie in number theory and *p*-adic analysis. Throughout his career, his primary focus has been to inspire students to enjoy mathematics and cultivate a deep interest in problem-solving.

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