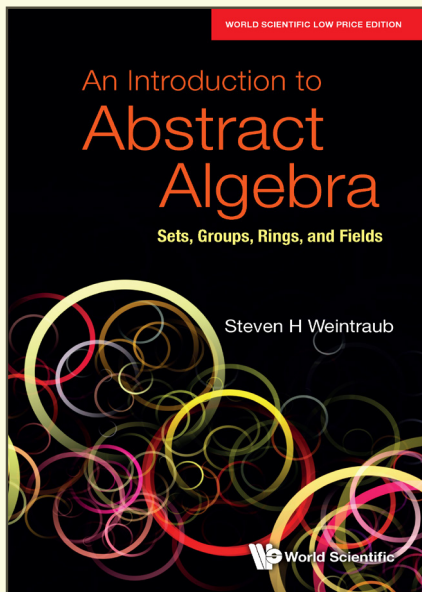


An Introduction to Abstract Algebra

Sets, Groups, Rings, and Fields



By **Steven H Weintraub**
(Lehigh University, USA)

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ABOUT THE BOOK

This book is a textbook for a semester-long or year-long introductory course in abstract algebra at the upper undergraduate or beginning graduate level.

It treats set theory, group theory, ring and ideal theory, and field theory (including Galois theory), and culminates with a treatment of Dedekind rings, including rings of algebraic integers.

In addition to treating standard topics, it contains material not often dealt with in books at this level. It provides a fresh perspective on the subjects it covers, with, in particular, distinctive treatments of factorization theory in integral domains and of Galois theory.

As an introduction, it presupposes no prior knowledge of abstract algebra, but provides a well-motivated, clear, and rigorous treatment of the subject, illustrated by many examples. Written with an eye toward number theory, it contains numerous applications to number theory (including proofs of Fermat's theorem on sums of two squares and of the Law of Quadratic Reciprocity) and serves as an excellent basis for further study in algebra in general and number theory in particular.

Each of its chapters concludes with a variety of exercises ranging from the straightforward to the challenging in order to reinforce students' knowledge of the subject. Some of these are particular examples that illustrate the theory while others are general results that develop the theory further.

READERSHIP

Advanced undergraduate and beginning graduate students in mathematics, suitable for introductory abstract algebra course in general, and particularly suitable for such a course with an orientation toward number theory.

CONTENTS

- Set Theory
- Group Theory
- Ring Theory
- Field Theory
- Rings of Algebraic Integers and Dedekind Rings
- Appendix A: Some Properties of the Integers
- Appendix B: A Theorem from Linear Algebra

ABOUT THE AUTHOR

Steven H Weintraub is Professor of Mathematics at Lehigh University. An active research mathematician, his work covers a broad range of areas in algebra and geometry. He is also an accomplished author, and this is his 14th book.

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