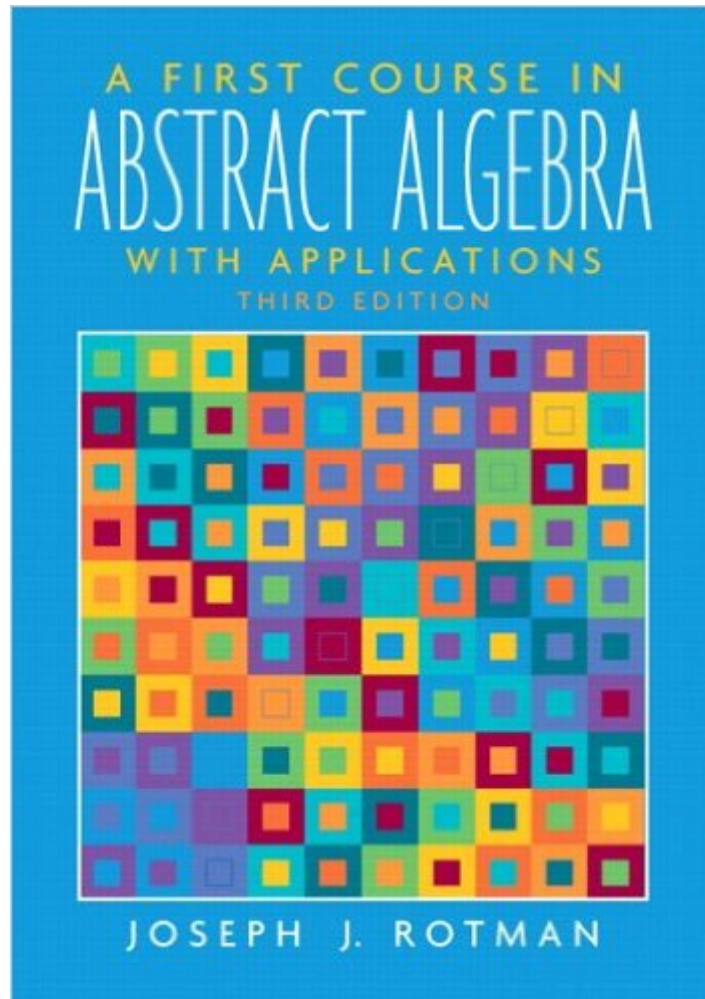


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# A First Course In Abstract Algebra (3rd Edition)



## Synopsis

This text introduces readers to the algebraic concepts of group and rings, providing a comprehensive discussion of theory as well as a significant number of applications for each.   
Number Theory: Induction; Binomial Coefficients; Greatest Common Divisors; The Fundamental Theorem of Arithmetic    Congruences; Dates and Days. Groups I: Some Set Theory; Permutations; Groups; Subgroups and Lagrange's Theorem; Homomorphisms; Quotient Groups; Group Actions; Counting with Groups. Commutative Rings I: First Properties; Fields; Polynomials; Homomorphisms; Greatest Common Divisors; Unique Factorization; Irreducibility; Quotient Rings and Finite Fields; Officers, Magic, Fertilizer, and Horizons. Linear Algebra: Vector Spaces; Euclidean Constructions; Linear Transformations; Determinants; Codes; Canonical Forms. Fields: Classical Formulas; Insolvability of the General Quintic; Epilog. Groups II: Finite Abelian Groups; The Sylow Theorems; Ornamental Symmetry. Commutative Rings III: Prime Ideals and Maximal Ideals; Unique Factorization; Noetherian Rings; Varieties; Grobner Bases.   
For all readers interested in abstract algebra.

## Book Information

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## Customer Reviews

Before taking an abstract algebra course this semester I studied the material on my own using the introductory texts by Gallian and Hungerford. These books were very useful because they actually completed proofs instead of leaving them as exercises for the reader. Someone new to abstract algebra is also typically new to higher mathematics. This means a book should have clear and full explanations, not skip major points like Rotman does. Rotman commits another sin by failing to

provide homework problems which correspond with the material he presents. One nice thing is that the book does provide a wide array of material (much more than most other introductory texts). This virtue soon turns astray however because by providing so much preliminary material on congruences, functions, divisibility, .... you'll be lucky if your teacher gets to groups by halfway through the semester.

Rotman's book is a standard for first courses in Abstract Algebra. The book is easy to read and includes plenty of problems to work on. He even includes several standard syllabi in the preface, depending on the type of course that may be taught with it. It begins with some number theory, then goes into the traditional group and ring concepts. The only reason I would say to not buy this book is if you really don't like the theorem-proof, theorem-proof kind of writing, but if you don't, you're likely not interested in Abstract Algebra anyway. An excellent book for learning as well as reference.

I was very disappointed with Rotman's attempt fix his first edition of this book. The wording is still overly dense, the topics skip around too much, and the examples are less than illuminating. At least he fixed the 10 by 10 orthogonal latin square on the cover to be correct this time. I think Herstein's classic "Topics in Algebra" is a much better introduction

The intro abstract algebra course I'm in is using Rotman as a textbook. It's more a reference book than a textbook. It's filled with theorems, proofs, and exercises (and little else). I like a "chatty" textbook that tries to give the "big picture". Rotman has short explanations (if any) and few examples. It's mainly proof after proof. And worse yet, its proofs are rather hard to follow. Even my instructor admitted as much. Personally, I found "Contemporary Abstract Algebra" by Gallian to be a helpful alternative. Gallian doesn't have the sheer volume of theorems and proofs as Rotman does, but his proofs are clearer and he offers proof methodologies from time to time. Rotman would make for a good reference book and it has several nice historical asides.

It is always easy to add something to than to get rid of something from the book. I guess this is the case of the author when he prepares the second edition. However, I prefer the first edition because it is more readable, enjoyable, and most importantly, contains just enough information for the introduction to abstract algebra. There are huge number of textbooks on abstract algebra, and making another would not be the author's purpose of the revision, I hope, but it looks it is. By adding more subjects in detail to the second edition, now it looks the same as any other, only to loose its

expository and conversational style of writings, and became a reference-style textbook.

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