

abstract algebra hungerford

Abstract Algebra: A Deep Dive into Hungerford's Classic Text

Introduction:

Are you embarking on the challenging yet rewarding journey into the world of abstract algebra? Do you find yourself staring at Thomas W. Hungerford's Algebra—a renowned textbook—feeling a bit overwhelmed? This comprehensive guide is designed to help you navigate this seminal work, providing a structured overview, highlighting key concepts, and offering practical advice for mastering its content. We'll unpack the structure of Hungerford's Algebra, explore its strengths and weaknesses, and equip you with the tools to successfully conquer this classic text. We'll delve into specific chapters, offering insights and clarifying common points of confusion. Whether you're a seasoned mathematician or a beginner taking your first steps into abstract algebra, this post will serve as your invaluable companion.

Understanding Hungerford's Algebra: A Structured Approach

Hungerford's Algebra isn't just a textbook; it's a comprehensive exploration of algebraic structures. Its depth and breadth make it a challenging yet ultimately rewarding experience for students. The book's reputation is built on its rigorous approach, detailed explanations, and wide-ranging coverage of topics. However, its density can be intimidating. This guide aims to dissect the book, chapter by chapter, offering clarity and context to aid your understanding.

I. The Structure of Hungerford's Algebra

Hungerford's Algebra is not for the faint of heart. Its comprehensive scope and rigorous style necessitate a strategic approach to study. Understanding its structure is the first step to success. The book broadly covers the following key areas:

Foundational Concepts: The initial chapters lay the groundwork, covering essential concepts like sets, functions, relations, and equivalence relations. These might seem elementary, but a solid grasp is crucial for later material. Mastering these early chapters is key to avoiding future confusion.

Group Theory: This forms a substantial portion of the book. You'll explore group axioms, subgroups, homomorphisms, quotient groups, Sylow theorems, and much more. Hungerford provides thorough proofs and numerous examples to reinforce your understanding. Expect to spend considerable time wrestling with group theory concepts, as they underpin much of the later material.

Ring Theory: Ring theory builds upon the foundation of group theory. You'll delve into ring axioms, ideals, quotient rings, field extensions, and polynomial rings. This section is highly interconnected with group theory, emphasizing the synergistic relationship between

different algebraic structures.

Module Theory: Modules generalize the concept of vector spaces over arbitrary rings. Understanding modules is crucial for advanced topics in algebra. Hungerford treats this topic rigorously, requiring a solid understanding of both group and ring theory.

Field Theory: This section explores field extensions, Galois theory, and the fundamental theorem of Galois theory. This is arguably the most challenging part of the book, requiring a strong grasp of previous concepts.

Linear Algebra: While not the primary focus, Hungerford incorporates linear algebra concepts throughout the text, highlighting its connections with other algebraic structures.

II. Navigating the Challenges: Tips for Success

Work through the Exercises: Hungerford's exercises are integral to understanding the material. Don't just read the text; actively engage with the problems. Start with the easier problems and gradually progress to the more challenging ones.

Seek Collaboration: Studying with peers can significantly enhance your understanding. Discuss challenging concepts, share solutions, and learn from each other's perspectives.

Utilize Supplementary Resources: Don't hesitate to consult other textbooks, online resources, and video lectures to gain different perspectives on the material.

Focus on Understanding, Not Memorization: The goal is not just to memorize theorems and proofs but to truly understand the underlying concepts. Focus on building intuition and understanding the "why" behind the "what."

Take Breaks: Studying abstract algebra requires sustained mental effort. Take regular breaks to avoid burnout and maintain focus.

III. Key Strengths and Weaknesses of Hungerford's Algebra

Strengths:

Rigor and Completeness: Hungerford's text is renowned for its mathematical rigor and comprehensive coverage of topics.

Detailed Proofs: The book provides detailed proofs of theorems, fostering a deep understanding of the underlying logic.

Extensive Examples: Numerous examples throughout the text illustrate key concepts and techniques.

Weaknesses:

Density and Difficulty: The book's density and challenging nature can be daunting for beginners.

Lack of Intuitive Explanations: While rigorous, the book sometimes lacks intuitive explanations, making it challenging for some learners.

Limited Applications: The focus is primarily on theoretical aspects, with limited coverage of applications.

A Sample Chapter Outline: Chapter 7 – Rings

This chapter lays the groundwork for ring theory, a crucial area in abstract algebra. Here's a potential outline of the topics covered:

Introduction to Rings: Definition of a ring, examples of rings (integers, polynomials, matrices), properties of rings, commutative rings, rings with unity.

Subrings and Ideals: Defining subrings, properties of subrings, the concept of ideals as special subrings, principal ideals, maximal ideals.

Homomorphisms and Isomorphisms: Ring homomorphisms, kernel and image of a homomorphism, isomorphism theorems for rings, and their implications.

Quotient Rings: Constructing quotient rings, properties of quotient rings, the fundamental homomorphism theorem for rings.

Integral Domains and Fields: Defining integral domains and fields, characteristics of fields, examples of integral domains and fields.

Polynomial Rings: Constructing polynomial rings, properties of polynomial rings, ideals in polynomial rings, irreducible polynomials.

Frequently Asked Questions (FAQs)

1. Is Hungerford's Algebra suitable for beginners? While comprehensive, its rigor makes it challenging for absolute beginners. A prior foundation in linear algebra is beneficial.
1. What prerequisites are needed to study Hungerford's Algebra? A solid understanding of sets, functions, and basic linear algebra is essential.
1. How long does it typically take to complete Hungerford's Algebra? The time required varies depending on individual background and pace, but a full academic year is common.
1. Are there alternative textbooks to Hungerford's Algebra? Yes, Dummit and Foote's Abstract Algebra is another popular choice, though similarly challenging.

1. What are the best resources for learning abstract algebra besides Hungerford's book? Online courses (Coursera, edX), YouTube lectures, and supplemental textbooks can be helpful.
1. Is Hungerford's Algebra used in graduate-level courses? Yes, it's frequently used in introductory graduate-level abstract algebra courses.
1. What makes Hungerford's Algebra so challenging? Its rigorous approach, detailed proofs, and dense writing style contribute to its difficulty.
1. Does Hungerford's Algebra cover all areas of abstract algebra? While comprehensive, it doesn't cover every niche topic within abstract algebra.
1. What are some common misconceptions about studying Hungerford's Algebra? One common misconception is that memorization is key; understanding concepts is far more crucial.

Related Articles:

1. Abstract Algebra: A Beginner's Guide: Introduces fundamental concepts in an accessible manner.
1. Group Theory: An Intuitive Approach: Focuses on developing intuition for group theory concepts.
1. Ring Theory Made Easy: Simplifies complex ring theory concepts for better understanding.
1. Mastering the Sylow Theorems: A detailed explanation of Sylow theorems and their

applications.

1. Galois Theory Explained: Explains the fundamental concepts of Galois theory in an accessible way.
1. Understanding Field Extensions: A comprehensive guide to field extensions and their properties.
1. The Fundamental Theorem of Algebra: A detailed explanation and proof of this essential theorem.
1. Solving Abstract Algebra Problems: Provides practical tips and strategies for solving abstract algebra problems.
1. Abstract Algebra and its Applications: Highlights the real-world applications of abstract algebra.

abstract algebra hungerford: Abstract Algebra Thomas W. Hungerford, 1997

abstract algebra hungerford: Algebra Thomas W. Hungerford, 2012-12-06 Finally a self-contained, one volume, graduate-level algebra text that is readable by the average graduate student and flexible enough to accommodate a wide variety of instructors and course contents. The guiding principle throughout is that the material should be presented as general as possible, consistent with good pedagogy. Therefore it stresses clarity rather than brevity and contains an extraordinarily large number of illustrative exercises.

abstract algebra hungerford: Abstract Algebra Thomas W. Hungerford, 2012-07-27
ABSTRACT ALGEBRA: AN INTRODUCTION, 3E, International Edition is intended for a first undergraduate course in modern abstract algebra. The flexible design of the text makes it suitable for courses of various lengths and different levels of mathematical sophistication, ranging from a traditional abstract algebra course to one with a more applied flavor. The emphasis is on clarity of exposition. The thematic development and organizational overview is what sets this book apart. The chapters are organized around three themes: arithmetic, congruence, and abstract structures. Each theme is developed first for the integers, then for polynomials, and finally for rings and groups. This enables students to see where many abstract concepts come from, why they are important, and how they relate to one another.

abstract algebra hungerford: Concepts in Abstract Algebra Charles Lanski, The style and structure of CONCEPTS IN ABSTRACT ALGEBRA is designed to help students learn the core concepts and associated techniques in algebra deeply and well. Providing a fuller and richer account of material than time allows in a lecture, this text presents interesting examples of sufficient complexity so that students can see the concepts and results used in a nontrivial setting. Author Charles Lanski gives students the opportunity to practice by offering many exercises that require the use and synthesis of the techniques and results. Both readable and mathematically interesting, the text also helps students learn the art of constructing mathematical arguments. Overall, students discover how mathematics proceeds and how to use techniques that mathematicians actually employ. This book is included in the Brooks/Cole Series in Advanced Mathematics (Series Editor: Paul Sally, Jr.).

abstract algebra hungerford: Algebra Thomas W. Hungerford, 2003-02-14 Finally a self-contained, one volume, graduate-level algebra text that is readable by the average graduate student and flexible enough to accommodate a wide variety of instructors and course contents. The guiding principle throughout is that the material should be presented as general as possible, consistent with good pedagogy. Therefore it stresses clarity rather than brevity and contains an extraordinarily large number of illustrative exercises.

abstract algebra hungerford: A Book of Abstract Algebra Charles C Pinter, 2010-01-14 Accessible but rigorous, this outstanding text encompasses all of the topics covered by a typical course in elementary abstract algebra. Its easy-to-read treatment offers an intuitive approach, featuring informal discussions followed by thematically arranged exercises. This second edition features additional exercises to improve student familiarity with applications. 1990 edition.

abstract algebra hungerford: Algebra: Chapter 0 Paolo Aluffi, 2021-11-09 Algebra: Chapter 0 is a self-contained introduction to the main topics of algebra, suitable for a first sequence on the subject at the beginning graduate or upper undergraduate level. The primary distinguishing feature of the book, compared to standard textbooks in algebra, is the early introduction of categories, used as a unifying theme in the presentation of the main topics. A second feature consists of an emphasis on homological algebra: basic notions on complexes are presented as soon as modules have been introduced, and an extensive last chapter on homological algebra can form the basis for a follow-up introductory course on the subject. Approximately 1,000 exercises both provide adequate practice to consolidate the understanding of the main body of the text and offer the opportunity to explore many other topics, including applications to number theory and algebraic geometry. This will allow instructors to adapt the textbook to their specific choice of topics and provide the independent reader with a richer exposure to algebra. Many exercises include substantial hints, and navigation of the topics is facilitated by an extensive index and by hundreds of cross-references.

abstract algebra hungerford: Algebra Saunders Mac Lane, Garrett Birkhoff, 2023-10-10 This book presents modern algebra from first principles and is accessible to undergraduates or graduates. It combines standard materials and necessary algebraic manipulations with general concepts that clarify meaning and importance. This conceptual approach to algebra starts with a description of algebraic structures by means of axioms chosen to suit the examples, for instance, axioms for groups, rings, fields, lattices, and vector spaces. This axiomatic approach—emphasized by Hilbert and developed in Germany by Noether, Artin, Van der Waerden, et al., in the 1920s—was popularized for the graduate level in the 1940s and 1950s to some degree by the authors' publication of A Survey of Modern Algebra. The present book presents the developments from that time to the first printing of this book. This third edition includes corrections made by the authors.

abstract algebra hungerford: A Course in Algebra Ernest Borisovich Vinberg, 2003-04-10 Presents modern algebra. This book includes such topics as affine and projective spaces, tensor algebra, Galois theory, Lie groups, and associative algebras and their representations. It is suitable for independent study for advanced undergraduates and graduate students.

abstract algebra hungerford: Basic Abstract Algebra Robert B. Ash, 2013-06-17 Relations between groups and sets, results and methods of abstract algebra in terms of number theory and

geometry, and noncommutative and homological algebra. Solutions. 2006 edition.

abstract algebra hungerford: Algebra Thomas W. Hungerford, 1974 Algebra fulfills a definite need to provide a self-contained, one volume, graduate level algebra text that is readable by the average graduate student and flexible enough to accomodate a wide variety of instructors and course contents. The guiding philosophical principle throughout the text is that the material should be presented in the maximum usable generality consistent with good pedagogy. Therefore it is essentially self-contained, stresses clarity rather than brevity and contains an unusually large number of illustrative exercises. The book covers major areas of modern algebra, which is a necessity for most mathematics students in sufficient breadth and depth.

abstract algebra hungerford: *Abstract Algebra* I. N. Herstein, 1990

abstract algebra hungerford: Undergraduate Algebra Serge Lang, 2013-06-29 The companion title, Linear Algebra, has sold over 8,000 copies The writing style is very accessible The material can be covered easily in a one-year or one-term course Includes Noah Snyder's proof of the Mason-Stothers polynomial abc theorem New material included on product structure for matrices including descriptions of the conjugation representation of the diagonal group

abstract algebra hungerford: **Basic Abstract Algebra** P. B. Bhattacharya, S. K. Jain, S. R. Nagpaul, 1994-11-25 This book provides a complete abstract algebra course, enabling instructors to select the topics for use in individual classes.

abstract algebra hungerford: **Exploring Abstract Algebra With Mathematica®** Allen C. Hibbard, Kenneth M. Levasseur, 2012-12-06 This upper-division laboratory supplement for courses in abstract algebra consists of several Mathematica packages programmed as a foundation for group and ring theory. Additionally, the user's guide illustrates the functionality of the underlying code, while the lab portion of the book reflects the contents of the Mathematica-based electronic notebooks. Students interact with both the printed and electronic versions of the material in the laboratory, and can look up details and reference information in the user's guide. Exercises occur in the stream of the text of the lab, which provides a context within which to answer, and the questions are designed to be either written into the electronic notebook, or on paper. The notebooks are available in both 2.2 and 3.0 versions of Mathematica, and run across all platforms for which Mathematica exists. A very timely and unique addition to the undergraduate abstract algebra curriculum, filling a tremendous void in the literature.

abstract algebra hungerford: **Abstract Algebra** John A. Beachy, William D. Blair, 1996

abstract algebra hungerford: **A First Course in Calculus** Serge Lang, 2012-09-17 This fifth edition of Lang's book covers all the topics traditionally taught in the first-year calculus sequence. Divided into five parts, each section of A FIRST COURSE IN CALCULUS contains examples and applications relating to the topic covered. In addition, the rear of the book contains detailed solutions to a large number of the exercises, allowing them to be used as worked-out examples -- one of the main improvements over previous editions.

abstract algebra hungerford: **Abstract Algebra** Dan Saracino, 2008-09-02 The Second Edition of this classic text maintains the clear exposition, logical organization, and accessible breadth of coverage that have been its hallmarks. It plunges directly into algebraic structures and incorporates an unusually large number of examples to clarify abstract concepts as they arise. Proofs of theorems do more than just prove the stated results; Saracino examines them so readers gain a better impression of where the proofs come from and why they proceed as they do. Most of the exercises range from easy to moderately difficult and ask for understanding of ideas rather than flashes of insight. The new edition introduces five new sections on field extensions and Galois theory, increasing its versatility by making it appropriate for a two-semester as well as a one-semester course.

abstract algebra hungerford: **Problems in Abstract Algebra** A. R. Wadsworth, 2017-05-10 This is a book of problems in abstract algebra for strong undergraduates or beginning graduate students. It can be used as a supplement to a course or for self-study. The book provides more variety and more challenging problems than are found in most algebra textbooks. It is intended for

students wanting to enrich their learning of mathematics by tackling problems that take some thought and effort to solve. The book contains problems on groups (including the Sylow Theorems, solvable groups, presentation of groups by generators and relations, and structure and duality for finite abelian groups); rings (including basic ideal theory and factorization in integral domains and Gauss's Theorem); linear algebra (emphasizing linear transformations, including canonical forms); and fields (including Galois theory). Hints to many problems are also included.

abstract algebra hungerford: *Abstract Algebra* David S. Dummit, 2018-09-11 Abstract Algebra, 4th Edition is designed to give the reader insight into the power and beauty that accrues from a rich interplay between different areas of mathematics. The book carefully develops the theory of different algebraic structures, beginning from basic definitions to some in-depth results, using numerous examples and exercises to aid the reader's understanding. In this way, readers gain an appreciation for how mathematical structures and their interplay lead to powerful results and insights in a number of different settings.

abstract algebra hungerford: *Topics in Algebra* I. N. Herstein, 1991-01-16 New edition includes extensive revisions of the material on finite groups and Galois Theory. New problems added throughout.

abstract algebra hungerford: Algebra William A. Adkins, Steven H. Weintraub, 1992 First year graduate algebra text. The choice of topics is guided by the underlying theme of modules as a basic unifying concept in mathematics. Beginning with standard topics in group and ring theory, the authors then develop basic module theory and its use in investigating bilinear, sesquilinear, and quadratic forms. Annotation copyrighted by Book News, Inc., Portland, OR

abstract algebra hungerford: Introduction to Abstract Algebra W. Keith Nicholson, 2012-03-20 Praise for the Third Edition . . . an expository masterpiece of the highest didactic value that has gained additional attractivity through the various improvements . . . —Zentralblatt MATH The Fourth Edition of *Introduction to Abstract Algebra* continues to provide an accessible approach to the basic structures of abstract algebra: groups, rings, and fields. The book's unique presentation helps readers advance to abstract theory by presenting concrete examples of induction, number theory, integers modulo n , and permutations before the abstract structures are defined. Readers can immediately begin to perform computations using abstract concepts that are developed in greater detail later in the text. The Fourth Edition features important concepts as well as specialized topics, including: The treatment of nilpotent groups, including the Frattini and Fitting subgroups Symmetric polynomials The proof of the fundamental theorem of algebra using symmetric polynomials The proof of Wedderburn's theorem on finite division rings The proof of the Wedderburn-Artin theorem Throughout the book, worked examples and real-world problems illustrate concepts and their applications, facilitating a complete understanding for readers regardless of their background in mathematics. A wealth of computational and theoretical exercises, ranging from basic to complex, allows readers to test their comprehension of the material. In addition, detailed historical notes and biographies of mathematicians provide context for and illuminate the discussion of key topics. A solutions manual is also available for readers who would like access to partial solutions to the book's exercises. *Introduction to Abstract Algebra*, Fourth Edition is an excellent book for courses on the topic at the upper-undergraduate and beginning-graduate levels. The book also serves as a valuable reference and self-study tool for practitioners in the fields of engineering, computer science, and applied mathematics.

abstract algebra hungerford: A Concrete Introduction to Higher Algebra Lindsay Childs, 2012-12-06 This book is written as an introduction to higher algebra for students with a background of a year of calculus. The book developed out of a set of notes for a sophomore-junior level course at the State University of New York at Albany entitled Classical Algebra. In the 1950s and before, it was customary for the first course in algebra to be a course in the theory of equations, consisting of a study of polynomials over the complex, real, and rational numbers, and, to a lesser extent, linear algebra from the point of view of systems of equations. Abstract algebra, that is, the study of groups, rings, and fields, usually followed such a course. In recent years the theory of equations course has

disappeared. Without it, students entering abstract algebra courses tend to lack the experience in the algebraic theory of the basic classical examples of the integers and polynomials necessary for understanding, and more importantly, for appreciating the formalism. To meet this problem, several texts have recently appeared introducing algebra through number theory.

abstract algebra hungerford: Instructor's Manual to Accompany Fundamentals of Abstract Algebra D. S. Malik, John N. Mordeson, M. K. Sen, 1997

abstract algebra hungerford: **Elements of Modern Algebra, International Edition** Linda Gilbert, 2008-11-01 ELEMENTS OF MODERN ALGEBRA, 7e, INTERNATIONAL EDITION with its user-friendly format, provides you with the tools you need to get succeed in abstract algebra and develop mathematical maturity as a bridge to higher-level mathematics courses.. Strategy boxes give you guidance and explanations about techniques and enable you to become more proficient at constructing proofs. A summary of key words and phrases at the end of each chapter help you master the material. A reference section, symbolic marginal notes, an appendix, and numerous examples help you develop your problem solving skills.

abstract algebra hungerford: **Abstract Algebra with Applications** Audrey Terras, 2019 This text offers a friendly and concise introduction to abstract algebra, emphasizing its uses in the modern world.

abstract algebra hungerford: *A Classical Introduction to Modern Number Theory* K. Ireland, M. Rosen, 2013-03-09 This book is a revised and greatly expanded version of our book Elements of Number Theory published in 1972. As with the first book the primary audience we envisage consists of upper level undergraduate mathematics majors and graduate students. We have assumed some familiarity with the material in a standard undergraduate course in abstract algebra. A large portion of Chapters 1-11 can be read even without such background with the aid of a small amount of supplementary reading. The later chapters assume some knowledge of Galois theory, and in Chapters 16 and 18 an acquaintance with the theory of complex variables is necessary. Number theory is an ancient subject and its content is vast. Any introductory book must, of necessity, make a very limited selection from the fascinating array of possible topics. Our focus is on topics which point in the direction of algebraic number theory and arithmetic algebraic geometry. By a careful selection of subject matter we have found it possible to exposit some rather advanced material without requiring very much in the way of technical background. Most of this material is classical in the sense that it was discovered during the nineteenth century and earlier, but it is also modern because it is intimately related to important research going on at the present time.

abstract algebra hungerford: **Introduction to Analysis** Edward Gaughan, 2009 The topics are quite standard: convergence of sequences, limits of functions, continuity, differentiation, the Riemann integral, infinite series, power series, and convergence of sequences of functions. Many examples are given to illustrate the theory, and exercises at the end of each chapter are keyed to each section.--pub. desc.

abstract algebra hungerford: **Abstract Algebra** Thomas Judson, 2023-08-11 Abstract Algebra: Theory and Applications is an open-source textbook that is designed to teach the principles and theory of abstract algebra to college juniors and seniors in a rigorous manner. Its strengths include a wide range of exercises, both computational and theoretical, plus many non-trivial applications. The first half of the book presents group theory, through the Sylow theorems, with enough material for a semester-long course. The second half is suitable for a second semester and presents rings, integral domains, Boolean algebras, vector spaces, and fields, concluding with Galois Theory.

abstract algebra hungerford: Algebra Michael Artin, 2013-09-01 Algebra, Second Edition, by Michael Artin, is ideal for the honors undergraduate or introductory graduate course. The second edition of this classic text incorporates twenty years of feedback and the author's own teaching experience. The text discusses concrete topics of algebra in greater detail than most texts, preparing students for the more abstract concepts; linear algebra is tightly integrated throughout.

abstract algebra hungerford: Linear Algebra Problem Book Paul R. Halmos, 1995-12-31

Linear Algebra Problem Book can be either the main course or the dessert for someone who needs linear algebra and today that means every user of mathematics. It can be used as the basis of either an official course or a program of private study. If used as a course, the book can stand by itself, or if so desired, it can be stirred in with a standard linear algebra course as the seasoning that provides the interest, the challenge, and the motivation that is needed by experienced scholars as much as by beginning students. The best way to learn is to do, and the purpose of this book is to get the reader to DO linear algebra. The approach is Socratic: first ask a question, then give a hint (if necessary), then, finally, for security and completeness, provide the detailed answer.

abstract algebra hungerford: *Advanced Linear Algebra* Steven Roman, 2007-12-31 Covers a notably broad range of topics, including some topics not generally found in linear algebra books Contains a discussion of the basics of linear algebra

abstract algebra hungerford: *A First Course in Abstract Algebra* John B. Fraleigh, 1989 Considered a classic by many, *A First Course in Abstract Algebra* is an in-depth, introductory text which gives students a firm foundation for more specialized work by emphasizing an understanding of the nature of algebraic structures. The Sixth Edition continues its tradition of teaching in a classical manner, while integrating field theory and new exercises.

abstract algebra hungerford: *Matrix Algebra* James E. Gentle, 2007-07-27 Matrix algebra is one of the most important areas of mathematics for data analysis and for statistical theory. This much-needed work presents the relevant aspects of the theory of matrix algebra for applications in statistics. It moves on to consider the various types of matrices encountered in statistics, such as projection matrices and positive definite matrices, and describes the special properties of those matrices. Finally, it covers numerical linear algebra, beginning with a discussion of the basics of numerical computations, and following up with accurate and efficient algorithms for factoring matrices, solving linear systems of equations, and extracting eigenvalues and eigenvectors.

abstract algebra hungerford: *Calculus for the Ambitious* T. W. Körner, 2014-05-29 A short introduction perfect for any 16- to 18-year-old, about to begin studies in mathematics.

abstract algebra hungerford: *Advanced Modern Algebra* Joseph J. Rotman, 2023-02-22 This book is the second part of the new edition of *Advanced Modern Algebra* (the first part published as *Graduate Studies in Mathematics*, Volume 165). Compared to the previous edition, the material has been significantly reorganized and many sections have been rewritten. The book presents many topics mentioned in the first part in greater depth and in more detail. The five chapters of the book are devoted to group theory, representation theory, homological algebra, categories, and commutative algebra, respectively. The book can be used as a text for a second abstract algebra graduate course, as a source of additional material to a first abstract algebra graduate course, or for self-study.

abstract algebra hungerford: *Lectures in Abstract Algebra* N. Jacobson, 1975 The present volume is the second in the author's series of three dealing with abstract algebra. For an understanding of this volume a certain familiarity with the basic concepts treated in Volume I: groups, rings, fields, homomorphisms, is presupposed. However, we have tried to make this account of linear algebra independent of a detailed knowledge of our first volume. References to specific results are given occasionally but some of the fundamental concepts needed have been treated again. In short, it is hoped that this volume can be read with complete understanding by any student who is mathematically sufficiently mature and who has a familiarity with the standard notions of modern algebra. Our point of view in the present volume is basically the abstract conceptual one. However, from time to time we have deviated somewhat from this. Occasionally formal calculational methods yield sharper results. Moreover, the results of linear algebra are not an end in themselves but are essential tools for use in other branches of mathematics and its applications. It is therefore useful to have at hand methods which are constructive and which can be applied in numerical problems. These methods sometimes necessitate a somewhat lengthier discussion but we have felt that their presentation is justified on the grounds indicated. A student well versed in abstract algebra will undoubtedly observe short cuts. Some of these have been indicated in footnotes. We

have included a large number of exercises in the text.

abstract algebra hungerford: Understanding Analysis Stephen Abbott, 2012-12-06 This elementary presentation exposes readers to both the process of rigor and the rewards inherent in taking an axiomatic approach to the study of functions of a real variable. The aim is to challenge and improve mathematical intuition rather than to verify it. The philosophy of this book is to focus attention on questions which give analysis its inherent fascination. Each chapter begins with the discussion of some motivating examples and concludes with a series of questions.

abstract algebra hungerford: Module Theory Thomas Scott Blyth, 1990 This textbook provides a self-contained course on the basic properties of modules and their importance in the theory of linear algebra. The first 11 chapters introduce the central results and applications of the theory of modules. Subsequent chapters deal with advanced linear algebra, including multilinear and tensor algebra, and explore such topics as the exterior product approach to the determinants of matrices, a module-theoretic approach to the structure of finitely generated Abelian groups, canonical forms, and normal transformations. Suitable for undergraduate courses, the text now includes a proof of the celebrated Wedderburn-Artin theorem which determines the structure of simple Artinian rings.

Additional Resources

abstract algebra hungerford

[Abstract Algebra Hungerford](#)

Abstract Algebra Hungerford

Related Articles

- [algebra 1 big ideas math book](#)
- [algebra 1 review for algebra 2](#)
- [accounting all in one for dummies](#)

[Back to Home](#)