Algebra A Graduate Course

Decoding **Algebra A Graduate Course**: Revealing the Captivating Potential of Verbal Expression

In a time characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its power to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Algebra A Graduate Course**," a mesmerizing literary creation penned by a celebrated wordsmith, readers set about an enlightening odyssey, unraveling the intricate significance of language and its enduring affect our lives. In this appraisal, we shall explore the book is central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

Abstract Algebra Paul B. Garrett 2007-09-25 Designed for an advanced undergraduate- or graduate-level course, Abstract Algebra provides an example-oriented, less heavily symbolic approach to abstract algebra. The text emphasizes specifics such as basic number theory, polynomials, finite fields, as well as linear and multilinear algebra. This classroom-tested, how-to manual takes a more narrative approach than the stiff formalism of many other textbooks, presenting coherent storylines to convey crucial ideas in a student-friendly, accessible manner. An unusual feature of the text is the systematic characterization of objects by universal mapping properties, rather than by constructions whose technical details are irrelevant. Addresses Common Curricular Weaknesses In addition to standard introductory material on the subject, such as Lagrange's and Sylow's theorems in group theory, the text provides important specific illustrations of general theory, discussing in detail finite fields, cyclotomic polynomials, and cyclotomic fields. The book also focuses on broader background, including brief but representative discussions of naive set theory and equivalents of the axiom of choice, quadratic reciprocity, Dirichlet's theorem on primes in arithmetic progressions, and some basic complex analysis. Numerous worked examples and exercises throughout facilitate a thorough understanding of the material.

A First Graduate Course in Abstract Algebra W.J. Wickless 2004-03-29 Since abstract algebra is so important to the study of advanced mathematics, it is critical that students have a firm grasp of its principles and underlying theories before moving on to further study. To accomplish this, they require a concise, accessible, user-friendly textbook that is both challenging and stimulating. A First Graduate Course in Abstract Algebra is just such a textbook. Divided into two sections, this book covers both the standard topics (groups, modules, rings, and vector spaces) associated with abstract algebra and more advanced topics such as Galois fields, noncommutative rings, group extensions, and Abelian groups. The author includes review material where needed instead of in a single chapter, giving convenient access with minimal page turning. He also provides ample examples, exercises, and problem sets to reinforce the material. This book illustrates the theory of finitely generated modules over principal ideal domains, discusses tensor products, and demonstrates the development of determinants. It also covers Sylow theory and Jordan canonical form. A First Graduate Course in Abstract Algebra is ideal for a two-semester course, providing enough examples, problems, and exercises for a deep understanding. Each of the final three chapters is logically independent and can be covered in any order, perfect for a customized syllabus.

A Course in Homological Algebra P.J. Hilton 2013-03-09 In this chapter we are largely influenced in our choice of material by the demands of the rest of the book. However, we take the view that this is an opportunity for the student to grasp basic categorical notions which permeate so much of mathematics today, including, of course, algebraic topology, so that we do not allow ourselves to be rigidly restricted by our immediate objectives. A reader totally unfamiliar with category theory may find it easiest to restrict his first reading of Chapter II to Sections 1 to 6; large parts of the book are understandable with the material presented in these sections. Another reader, who had already met many examples of categorical formulations and concepts might, in fact, prefer to look at Chapter II before reading Chapter I. Of course the reader thoroughly familiar with category theory could, in principal, omit Chapter II, except perhaps to familiarize himself with the notations employed. In Chapter III we begin the proper study of homological algebra by looking in particular at the group ExtA(A, B), where A and Bare A-modules. It is shown how this group can be calculated by means of a projective presentation of A, or an injective presentation of B; and how it may also be identified with the group of equivalence classes of extensions of the quotient module A by the submodule B.

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.

A First Graduate Course in Abstract Algebra William Jennings Wickless 2019-09-27 Realizing the specific needs of first-year graduate students, this reference allows readers to grasp and master fundamental concepts in abstract algebra-establishing a clear understanding of basic linear algebra and number, group, and commutative ring theory and progressing to sophisticated discussions on Galois and Sylow theory, the structure of abelian groups, the Jordan canonical form, and linear transformations and their matrix representations.

The Linear Algebra a Beginning Graduate Student Ought to Know Jonathan S. Golan 2012-04-23 Linear algebra is a living, active branch of mathematics which is central to almost all other areas of mathematics, both pure and applied, as well as to computer science, to the physical, biological, and social sciences, and to engineering. It encompasses an extensive corpus of theoretical results as well as a large and rapidly-growing body of computational techniques. Unfortunately, in the past decade, the content of linear algebra courses required to complete an undergraduate degree in mathematics has been depleted to the extent that they fail to provide a sufficient theoretical or computational background. Students are not only less able to formulate or even follow mathematical proofs, they are also less able to understand the mathematics of the numerical algorithms they need for applications. Certainly, the material presented in the average undergraduate course is insufficient for graduate study. This book is intended to fill the gap which has developed by providing enough theoretical and computational material to allow the advanced undergraduate or beginning graduate student to overcome this deficiency and be able to work independently or in advanced courses. The book is intended to be used either as a self-study guide, a textbook for a course in advanced linear algebra, or as a reference book. It is also designed to prepare a student for the linear algebra portion of prelim exams or PhD qualifying exams. The volume is self-contained to the extent that it does not assume any previous formal knowledge of linear algebra, though the reader is assumed to have been exposed, at least informally, to some of the basic ideas and techniques, such as manipulation of small matrices and the solution of small systems of linear equations over the real numbers. More importantly, it assumes a seriousness of purpose, considerable motivation, and a modicum of mathematical sophistication on the part of the reader. In the latest edition, new major theorems have been added, as well as many new examples. There are over 130 additional exercises and many of the previous exercises have been revised or rewritten. In addition, a large number of additional biographical notes and thumbnail portraits of mathematicians have been included.

Algebraic Statistics Seth Sullivant 2018-11-19 Algebraic statistics uses tools from algebraic geometry, commutative algebra, combinatorics, and their computational sides to address problems in statistics and its applications. The starting point for this connection is the observation that many statistical models are

semialgebraic sets. The algebra/statistics connection is now over twenty years old, and this book presents the first broad introductory treatment of the subject. Along with background material in probability, algebra, and statistics, this book covers a range of topics in algebraic statistics including algebraic exponential families, likelihood inference, Fisher's exact test, bounds on entries of contingency tables, design of experiments, identifiability of hidden variable models, phylogenetic models, and model selection. With numerous examples, references, and over 150 exercises, this book is suitable for both classroom use and independent study.

Algebra I Alexey L. Gorodentsev 2016-11-24 This book is the first volume of an intensive “Russian-style” two-year graduate course in abstract algebra, and introduces readers to the basic algebraic structures – fields, rings, modules, algebras, groups, and categories – and explains the main principles of and methods for working with them. The course covers substantial areas of advanced combinatorics, geometry, linear and multilinear algebra, representation theory, category theory, commutative algebra, Galois theory, and algebraic geometry – topics that are often overlooked in standard undergraduate courses. This textbook is based on courses the author has conducted at the Independent University of Moscow and at the Faculty of Mathematics in the Higher School of Economics. The main content is complemented by a wealth of exercises for class discussion, some of which include comments and hints, as well as problems for independent study.

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.

Algebraic Geometry Michael Artin 2022-09-21 This book is an introduction to the geometry of complex algebraic varieties. It is intended for students who have learned algebra, analysis, and topology, as taught in standard undergraduate courses. So it is a suitable text for a beginning graduate course or an advanced undergraduate course. The book begins with a study of plane algebraic curves, then introduces affine and projective varieties, going on to dimension and constructibility. $mathcal{O}$-modules (quasicoherent sheaves) are defined without reference to sheaf theory, and their cohomology is defined axiomatically. The Riemann-Roch Theorem for curves is proved using projection to the projective line. Some of the points that aren't always treated in beginning courses are Hensel's Lemma, Chevalley's Finiteness Theorem, and the Birkhoff-Grothendieck Theorem. The book contains extensive discussions of finite group actions, lines in $mathbb{P}^3$, and double planes, and it ends with applications of the Riemann-Roch Theorem.

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.

The Linear Algebra a Beginning Graduate Student Ought to Know Jonathan S. Golan 2012-02-22 Linear algebra is a living, active branch of mathematics which is central to almost all other areas of mathematics, both pure and applied, as well as to computer science, to the physical, biological, and social sciences, and to engineering. It encompasses an extensive corpus of theoretical results as well as a large and rapidly-growing body of computational techniques. Unfortunately, in the past decade, the content of linear algebra courses required to complete an undergraduate degree in mathematics has been depleted to the extent that they fail to provide a sufficient theoretical or computational background. Students are not only less able to formulate or even follow mathematical proofs, they are also less able to understand the mathematics of the numerical algorithms they need for applications. Certainly, the material presented in the average undergraduate course is insufficient for graduate study. This book is intended to fill the gap which has developed by providing enough theoretical and computational material to allow the advanced undergraduate or beginning graduate student to overcome this deficiency and be able to work independently or in advanced courses. The book is intended to be used either as a self-study guide, a textbook for a course in advanced linear algebra, or as a reference book. It is also designed to prepare a student for the linear algebra portion of prelim exams or PhD qualifying exams. The volume is self-contained to the extent that it does not assume any previous formal knowledge of linear algebra, though the reader is assumed to have been exposed, at least informally, to some of the basic ideas and techniques, such as manipulation of small matrices and the solution of small systems of linear equations over the real numbers. More importantly, it assumes a seriousness of purpose, considerable motivation, and a modicum of mathematical sophistication on the part of the reader. In the latest edition, new major theorems have been added, as well as many new examples. There are over 130 additional exercises and many of the previous exercises have been revised or rewritten. In addition, a large number of additional biographical notes and thumbnail portraits of mathematicians have been included.

A Graduate Course in Algebra Ioannis Farmakis 2017

Algebra I. Martin Isaacs 2009 as a student." --Book Jacket.

Algebraic Geometry Joe Harris 2013-11-11 "This book succeeds brilliantly by concentrating on a number of core topics...and by treating them in a hugely rich and varied way. The author ensures that the reader will learn a large amount of classical material and perhaps more importantly, will also learn that there is no one approach to the subject. The essence lies in the range and interplay of possible approaches. The author is to be congratulated on a work of deep and enthusiastic scholarship." --MATHEMATICAL REVIEWS

Algebra William A. Adkins 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

A First Course in Noncommutative Rings Tsit-Yuen Lam 2013-01-06 Aimed at the novice rather than the connoisseur and stressing the role of examples and motivation, this text is suitable not only for use in a graduate course, but also for self-study in the subject by interested graduate students. More than 400 exercises testing the understanding of the general theory in the text are included in this new edition.

Advanced Modern Algebra Joseph J. Rotman 2017 C-4.7. Adjoint Functor Theorem for Modules -- C-4.8. Algebraic -Theory -- The Functor 0 -- The Functor 0 -- Chapter C-5. Commutative Rings III -- C-5.1. Local and Global -- Subgroups of \Q -- C-5.2. Localization -- C-5.3. Dedekind Rings -- Integrality -- Algebraic Integers -- Characterizations of Dedekind Rings -- Finitely Generated Modules over Dedekind Rings -- C-5.4. Homological Dimensions -- C-5.5. Hilbert's Theorem on Syzygies -- C-5.6. Commutative Noetherian Rings -- C-5.7. Regular Local Rings -- Bibliography -- Index -- Back Cover

Invitation to Nonlinear Algebra Mateusz Michałek 2021-03-05 Nonlinear algebra provides modern mathematical tools to address challenges arising in the sciences and engineering. It is useful everywhere, where polynomials appear: in particular, data and computational sciences, statistics, physics, optimization. The book offers an invitation to this broad and fast-developing area. It is not an extensive encyclopedia of known results, but rather a first introduction to the subject, allowing the reader to enter into more advanced topics. It was designed as the next step after linear algebra and well before abstract algebraic geometry. The book presents both classical topics—like the Nullstellensatz and primary decomposition—and more modern ones—like tropical geometry and semidefinite programming. The focus lies on interactions and applications. Each of the thirteen chapters introduces fundamental concepts. The book may be used for a one-semester course, and the over 200 exercises will help the readers to deepen their understanding of the subject.

A Course in Computational Algebraic Number Theory Henri Cohen 2013-04-17 A description of 148 algorithms fundamental to number-theoretic computations, in particular for computations related to algebraic number theory, elliptic curves, primality testing and factoring. The first seven chapters guide readers to the heart of current research in computational algebraic number theory, including recent algorithms for computing class groups and units, as well as elliptic curve computations, while the last three chapters survey factoring and primality testing methods, including a detailed description of the number field sieve algorithm. The whole is rounded off with a description of available computer packages and some useful tables, backed by numerous exercises. Written by an authority in the field, and one with great practical and teaching experience, this is certain to become the standard and indispensable reference on the subject.

A First Course in Noncommutative Rings T. Y. Lam 1991-09-12

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.

Free Algebras and PI-algebras Vesselin S. Drensky 2000 The book is devoted to the combinatorial theory of polynomial algebras, free associative and free Lie algebras, and algebras with polynomial identities. It also examines the structure of automorphism groups of free and relatively free algebras. It is based on graduate courses and short cycles of lectures presented by the author at several universities and its goal is to involve the reader as soon as possible in the research area, to make him or her able to read books and papers on the considered topics. It contains both classical and contemporary results and methods. A specific feature of the book is that it includes as its inseparable part more than 250 exercises and examples with detailed hints (50 % of the numbered statements), some of them treating serious mathematical results. The exposition is accessible for graduate and advanced undergraduate students with standard background on linear algebra and some elements of ring theory and group theory. The professional mathematician working in the field of algebra and other related topics also will find the book useful for his or her research and teaching. TOC:Introduction 1. Commutative, Associative and Lie Algebras: Basic properties of algebras; Free algebras; The Poincaré-Birkhoff-Witt theorem. 2. Algebras with Polynomial Identities: Definitions and examples of PI-Algebras; Varieties and relatively free algebras; The theorem of Birkhoff. 3. The Specht Problem: The finite basis property; Lie algebras in characteristic 2. 4. Numerical Invariants of T-Ideals: Graded vector spaces; Homogeneous and multilinear polynomial identities; Proper polynomial identities. 5. Polynomial Identities of Concrete Algebras: Polynomial identities of the Grassmann algebra; Polynomial identities of the upper triangular matrices. 6. Methods of Commutative Algebra: Rational Hilbert series; Nonmatrix polynomial identities; Commutative and noncommutative invariant theory. 7. Polynomial Identities of the Matrix Algebras: The Amitsur-Levitzki theorem; Generic matrices; Central polynomials; Various identities of matrices. 8. Multilinear Polynomial Identities: The codimension theorem of Regev; Algebras with polynomial growth of codimensions; The Nagata-Higman theorem; The theory of Kemer. 9. Finitely Generated PI-Algebras: The problems of Burnside and Kurosch; The Shirshov theorem; Growth of algebras and Gelfand-Kirillov dimension; Gelfand-Kirillov dimension of PI-Algebras. 10. Automorphisms of Free Algebras: Automorphisms of groups and algebras; The polynomial algebra in two variables; The free associative algebra of rank two; Exponential automorphisms; Automorphisms of relatively free algebras. 11. Free Lie Algebras and Their Automorphisms: Bases and subalgebras of free Lie algebras; Automorphisms of free Lie algebras; Automorphisms of relatively free Lie algebras. 12. The Method of Representation Theory: Representations of finite groups; The symmetric group; Multilinear polynomial identities; The action of the general linear group; Proper polynomial identities; Polynomial identities of matrices.

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

Dynamical Systems and Linear Algebra Fritz Colonius 2014-10-03 This book provides an introduction to the interplay between linear algebra and dynamical systems in continuous time and in discrete time. It first reviews the autonomous case for one matrix A via induced dynamical systems in ℝd and on Grassmannian manifolds. Then the main nonautonomous approaches are presented for which the time dependency of A(t) is given via skew-product flows using periodicity, or topological (chain recurrence) or ergodic properties (invariant measures). The authors develop generalizations of (real parts of) eigenvalues and eigenspaces as a starting point for a linear algebra for classes of time-varying linear systems, namely periodic, random, and perturbed (or controlled) systems. The book presents for the first time in one volume a unified approach via Lyapunov exponents to detailed proofs of Floquet theory, of the properties of the Morse spectrum, and of the multiplicative ergodic theorem for products of random matrices. The main tools, chain recurrence and Morse decompositions, as well as classical ergodic theory are introduced in a way that makes the entire material accessible for beginning graduate students.

Advanced Modern Algebra: Third Edition, Part 2 Joseph J. Rotman 2017-08-15 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.

Algebra 1993

A Graduate Course in Algebra Ioannis Farmakis 2017

Computational Algebra: Course And Exercises With Solutions Ihsen Yengui 2021-05-17 This book intends to provide material for a graduate course on computational commutative algebra and algebraic geometry, highlighting potential applications in cryptography. Also, the topics in this book could form the basis of a graduate course that acts as a segue between an introductory algebra course and the more technical topics of commutative algebra and algebraic geometry.This book contains a total of 124 exercises with detailed solutions as well as an important number of examples that illustrate definitions, theorems, and methods. This is very important for students or researchers who are not familiar with the topics discussed. Experience has shown that beginners who want to take their first steps in algebraic geometry are usually discouraged by the difficulty of the proposed exercises and the absence of detailed answers. Therefore, exercises (and their solutions) as well as examples occupy a prominent place in this course.This book is not designed as a comprehensive reference work, but rather as a selective textbook. The many exercises with detailed answers make it suitable for use in both a math or computer science course.

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.

Graduate Algebra Louis Halle Rowen 2006 This book is an expanded text for a graduate course in commutative algebra, focusing on the algebraic underpinnings of algebraic geometry and of number theory. Accordingly, the theory of affine algebras is featured, treated both directly and via the theory of Noetherian and Artinian modules, and the theory of graded algebras is included to provide the foundation for projective varieties. Major topics include the theory of modules over a principal ideal domain, and its applicationsto matrix theory (including the Jordan decomposition), the Galois theory of field extensions, transcendence degree, the prime spectrum of an algebra, localization, and the classical theory of Noetherian and Artinian rings. Later chapters include some algebraic theory of elliptic curves (featuring theMordell-Weil theorem) and valuation theory, including local fields. One feature of the book is an extension of the text through a series of appendices. This permits the inclusion of more advanced material, such as transcendental field

extensions, the discriminant and resultant, the theory of Dedekind domains, and basic theorems of rings of algebraic integers. An extended appendix on derivations includes the Jacobian conjecture and Makar-Limanov's theory of locally nilpotent derivations. Grobnerbases can be found in another appendix. Exercises provide a further extension of the text. The book can be used both as a textbook and as a reference source.
A First Course in Noncommutative Rings Tsi-Yuen Lam 2011-04-22 Aimed at the novice rather than the connoisseur and stressing the role of examples and motivation, this text is suitable not only for use in a graduate course, but also for self-study in the subject by interested graduate students. More than 400 exercises testing the understanding of the general theory in the text are included in this new edition.
A Course in Commutative Algebra Gregor Kemper 2010-12-02 This textbook offers a thorough, modern introduction into commutative algebra. It is intented mainly to serve as a guide for a course of one or two semesters, or for self-study. The carefully selected subject matter concentrates on the concepts and results at the center of the field. The book maintains a constant view on the natural geometric context, enabling the reader to gain a deeper understanding of the material. Although it emphasizes theory, three chapters are devoted to computational aspects. Many illustrative examples and exercises enrich the text.
A Course in Universal Algebra S. Burris 2011-10-21 Universal algebra has enjoyed a particularly explosive growth in the last twenty years, and a student entering the subject now will find a bewildering amount of material to digest. This text is not intended to be encyclopedic; rather, a few themes central to universal algebra have been developed sufficiently to bring the reader to the brink of current research. The choice of topics most certainly reflects the authors' interests. Chapter I contains a brief but substantial introduction to lattices, and to the close connection between complete lattices and closure operators. In particular, everything necessary for the subsequent study of congruence lattices is included. Chapter II develops the most general and fundamental notions of uni versal algebra-these include the results that apply to all types of algebras, such as the homomorphism and isomorphism theorems. Free algebras are discussed in great detail-we use them to derive the existence of simple algebras, the rules of equational logic, and the important Mal'cev conditions. We introduce the notion of classifying a variety by properties of (the lattices of) congruences on members of the variety. Also, the center of an algebra is defined and used to characterize modules (up to polynomial equivalence). In Chapter III we show how neatly two famous results-the refutation of Euler's conjecture on orthogonal Latin squares and Kleene's character ization of languages accepted by finite automata-can be presented using universal algebra. We predict that such "applied universal algebra" will become much more prominent.
Graduate Course in Algebra, a (in 2 Volumes) Ioannis Farmakis 2016-12-31 'I like the authorsâ (TM) taste in footnotes, what with their frequent emphasis on history, i.e. the minutiae of the lives of many mathematicians appearing in these pages. Their remarks add a particular dimension of fun and pleasure to what I think is a very good book. Itâ (TM)s pitched at the right level, it does a lot of serious stuff in preparation for what is coming the studentsâ (TM) way in the future, and it does it well.'MAA ReviewsThis comprehensive two-volume book deals with algebra, broadly conceived. Volume 1 (Chapters 1-6) comprises material for a first year graduate course in algebra, offering the instructor a number of options in designing such a course. Volume 1, provides as well all essential material that students need to prepare for the qualifying exam in algebra at most American and European universities. Volume 2 (Chapters 7-13) forms the basis for a second year graduate course in topics in algebra. As the table of contents shows, that volume provides ample material accommodating a variety of topics that may be included in a second year course. To facilitate matters for the reader, there is a chart showing the interdependence of the chapters.
Graduate Algebra: Noncommutative view Louis Halle Rowen 2006 "This book is an expanded text for a graduate course in commutative algebra, focusing on the algebraic underpinnings of algebraic geometry and of number theory. Accordingly, the theory of affine algebras is featured, treated both directly and via the theory of Noetherian and Artinian modules, and the theory of graded algebras is included to provide the foundation for projective varieties."--Jacket.
A Graduate Course in Algebra Martin A. Moskowitz 2017
Linear Algebra in Action Harry Dym 2013-12-31 Linear algebra permeates mathematics, perhaps more so than any other single subject. It plays an essential role in pure and applied mathematics, statistics, computer science, and many aspects of physics and engineering. This book conveys in a user-friendly way the basic and advanced techniques of linear algebra from the point of view of a working analyst. The techniques are illustrated by a wide sample of applications and examples that are chosen to highlight the tools of the trade. In short, this is material that many of us wish we had been taught as graduate students. Roughly the first third of the book covers the basic material of a first course in linear algebra. The remaining chapters are devoted to applications drawn from vector calculus, numerical analysis, control theory, complex analysis, convexity and functional analysis. In particular, fixed point theorems, extremal problems, matrix equations, zero location and eigenvalue location problems, and matrices with nonnegative entries are discussed. Appendices on useful facts from analysis and supplementary information from complex function theory are also provided for the convenience of the reader. In this new edition, most of the chapters in the first edition have been revised, some extensively. The revisions include changes in a number of proofs, either to simplify the argument, to make the logic clearer or, on occasion, to sharpen the result. New introductory sections on linear programming, extreme points for polyhedra and a Nevanlinna-Pick interpolation problem have been added, as have some very short introductory sections on the mathematics behind Google, Drazin inverses, band inverses and applications of SVD together with a number of new exercises.
A Course in Algebra Ėrnest Borisovich Vinberg 2003 Great book! The author's teaching experinece shows in every chapter. --Efim Zelmanov, University of California, San Diego Vinberg has written an algebra book that is excellent, both as a classroom text or for self-study. It is plain that years of teaching abstract algebra have enabled him to say the right thing at the right time. --Irving Kaplansky, MSRI This is a comprehensive text on modern algebra written for advanced undergraduate and basic graduate algebra classes. The book is based on courses taught by the author at the Mechanics and Mathematics Department of Moscow State University and at the Mathematical College of the Independent University of Moscow. The unique feature of the book is that it contains almost no technically difficult proofs. Following his point of view on mathematics, the author tried, whenever possible, to replace calculations and difficult deductions with conceptual proofs and to associate geometric images to algebraic objects. Another important feature is that the book presents most of the topics on several levels, allowing the student to move smoothly from initial acquaintance to thorough study and deeper understanding of the subject. Presented are basic topics in algebra such as algebraic structures, linear algebra, polynomials, groups, as well as more advanced topics like affine and projective spaces, tensor algebra, Galois theory, Lie groups, associative algebras and their representations. Some applications of linear algebra and group theory to physics are discussed. Written with extreme care and supplied with more than 200 exercises and 70 figures, the book is also an excellent text for independent study.
A Graduate Course in Algebra Ioannis Farmakis 2017-06-29 This comprehensive two-volume book deals with algebra, broadly conceived. Volume 1 (Chapters 1–6) comprises material for a first year graduate course in algebra, offering the instructor a number of options in designing such a course. Volume 1, provides as well all essential material that students need to prepare for the qualifying exam in algebra at most American and European universities. Volume 2 (Chapters 7–13) forms the basis for a second year graduate course in topics in algebra. As the table of contents shows, that volume provides ample material accommodating a variety of topics that may be included in a second year course. To facilitate matters for the reader, there is a chart showing the interdependence of the chapters.

platforms and strategies to ensure an enriching reading experience.

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