Concrete Abstract Algebra From Numbers To Grobner Bases By Cram101 Textbook Reviews

This book describes two stages in the historical development of the notion of mathematical structures: first, it traces its rise in the context of algebra from the mid-1800s to 1930, and then considers attempts to formulate elaborate theories after 1930 aimed at elucidating, from a purely mathematical perspective, the precise meaning of this idea.

This textbook presents modern algebra from the ground up using numbers and symmetry. The idea of a ring and of a field are introduced in the context of concrete number systems. Groups arise from considering transformations of simple geometric objects. The analysis of symmetry provides the student with a visual introduction to the central algebraic notion of isomorphism. Designed for a typical one-semester undergraduate course in modern algebra, it provides a gentle introduction to the subject by allowing students to see the ideas at work in accessible examples, rather than plunging them immediately into a sea of formalism. The student is involved at once with interesting algebraic structures, such as the Gaussian integers and the various rings of integers modulo n, and is encouraged to take the time to explore and become familiar with those structures. In terms of classical algebraic structures, the text divides roughly into three parts:

Algebra is abstract mathematics - let us make no bones about it - yet it is also applied mathematics in its best and purest form. It is not abstraction for its own sake, but abstraction for the sake of efficiency, power and insight. Algebra emerged from the struggle to solve concrete, physical problems in geometry, and succeeded after 2000 years of failure by other forms of mathematics. It did this by exposing the mathematical structure of geometry, and by providing the tools to analyse it. This is typical of the way algebra is applied; it is the best and purest form of application because it reveals the simplest and most universal mathematical structures. The present book aims to foster a proper appreciation of algebra by showing abstraction at work on concrete problems, the classical problems of construction by straightedge and compass. These problems originated in the time of Euclid, when geometry and number theory were paramount, and were not solved until th the 19 century, with the advent of abstract algebra. As we now know, alge bra brings about a unification of geometry, number theory and indeed most branches of mathematics. This is not really surprising when one has a historical understanding of the subject, which I also hope to impart.

Improved geospatial instrumentation and technology such as in laser scanning has now resulted in millions of data being collected, e.g., point clouds. It is in realization that such huge amount of data requires efficient and robust mathematical solutions that this third edition of the book extends the second edition by introducing three new chapters: Robust parameter estimation, Multiobjective optimization and Symbolic regression. Furthermore, the linear homotopy chapter is expanded to include nonlinear homotopy. These disciplines are discussed first in the theoretical part of the book before illustrating their geospatial applications in the applications chapters where numerous numerical examples are presented. The renewed electronic supplement contains these new theoretical and practical topics, with the corresponding Mathematica statements and functions supporting their computations introduced and applied. This third edition is renamed in light of these technological advancements.

This book provides a one-stop resource for mathematics educators, policy makers and all who are interested in learning more about the why, what and how of mathematics education in Singapore. The content is organized according to three significant and closely interrelated components: the Singapore mathematics curriculum, mathematics teacher education and professional development, and learners in Singapore mathematics classrooms. Written by leading researchers with an intimate understanding of Singapore mathematics education, this up-to-date book reports the latest trends in Singapore mathematics classrooms, including mathematical modelling and problem solving in the real-world context.

This book presents abstract algebra based on concrete examples and applications. All the traditional material with exciting directions.

This textbook provides a broad introduction to continuous and discrete dynamical systems. With its hands-on approach, the text leads the reader from basic theory to recently published research material in nonlinear ordinary differential equations, nonlinear optics, multifractals, neural networks, and binary oscillator computing. Dynamical Systems with Applications Using Python takes advantage of Python’s extensive visualization, simulation, and algorithmic tools to study those topics in nonlinear dynamical systems through numerical algorithms and generated diagrams. After a tutorial introduction to Python, the first part of the book deals with continuous systems using differential equations, including both ordinary and delay differential equations. The second part of the book deals with discrete dynamical systems and progresses to the study of both continuous and discrete systems in contexts like chaos control and synchronization, neural networks, and binary oscillator computing. These later sections are useful reference material for undergraduate student projects. The book is rounded off with example coursework to challenge students’ programming abilities and Python-based exam questions. This book will appeal to advanced undergraduate and graduate students, applied mathematicians, engineers, and researchers in a range of disciplines, such as biology, chemistry, computing, economics, and physics. Since it provides a survey of dynamical systems, a familiarity with linear algebra, real and complex analysis, calculus, and ordinary differential equations is necessary, and knowledge of a programming language like C or Java is beneficial but not essential.

This two-volume course on abstract algebra provides a broad introduction to the subject for those with no previous knowledge of it but who are well grounded in ordinary algebraic techniques. It starts from the beginning, leading up to fresh ideas gradually and in a fairly elementary manner, and moving from discussion of particular (concrete) cases to abstract ideas and methods. It thus avoids the common practice of presenting the reader with a mass of ideas at the beginning, which he is only later able to relate to his previous mathematical experience. The work contains many concrete examples of algebraic structures. Each chapter contains a few worked examples for the student - these are divided into straightforward and more advanced categories. Answers are provided. From general sets, Volume 1 leads on to discuss special sets of the integers, other number sets, residues, polynomials and vectors. A chapter on mappings is followed by a detailed study of the fundamental laws of algebra, and an account of the theory of groups which takes the idea of subgroups as far as Langrange's theorem. Some improvements in exposition found desirable by users of the book have been incorporated into the second edition and the opportunity has also been taken to correct a number of errors.

Highly regarded by instructors in past editions for its sequencing of topics and extensive set of exercises, the latest edition of Abstract Algebra retains its concrete approach with its gentle introduction to basic background material and its gradual increase in the level of sophistication as the student progresses through the book. Abstract concepts are introduced only after a careful study of important examples. Beachy and Blair's clear narrative presentation responds to the needs of inexperienced students who stumble over proof writing, who understand definitions and theorems but cannot do the problems, and who want more examples that tie into their previous experience. The authors introduce chapters by indicating why the material is important and, at the same time, relating the new material to things from the student's background and linking the subject matter of the chapter to the broader picture. The fourth edition includes a new chapter of selected topics in group theory: nilpotent groups, semidirect products, the classification of groups of small order, and an application of groups to the geometry of the plane. Students can download solutions to selected problems here.

A comprehensive presentation of abstract algebra and an in-depth treatment of the applications of algebraic techniques and the relationship of algebra to other disciplines, such as number theory, combinatorics, geometry, topology, differential equations, and Markov chains.

Excellent textbook provides undergraduates with an accessible introduction to the basic concepts of abstract algebra and to the analysis of abstract algebraic systems. Features many examples and problems.

Presents a systematic approach to one of math's most intimidating concepts. Avoiding the pitfalls common in the standard textbooks, this title begins with familiar topics such as rings, numbers, and groups before introducing more difficult concepts.

This book takes the reader on a journey from familiar high school mathematics to undergraduate algebra and number theory. The journey starts with the basic idea that new number systems arise from solving different equations, leading to (abstract) algebra. Along this journey, the reader will be exposed to important ideas of mathematics, and will learn a little about how mathematics is really done. Starting at an elementary level, the book gradually eases the reader into the complexities of higher mathematics; in particular, the formal structure of mathematical writing (definitions, theorems and proofs) is introduced in simple terms. The book covers a range of topics, from the very foundations (numbers, set theory) to basic abstract algebra (groups, rings, fields), driven throughout by the need to understand concrete equations and problems, such as determining which numbers are sums of squares. Some topics usually reserved for a more advanced audience, such as Eisenstein integers or quadratic reciprocity, are lucidly presented in an accessible way. The book also introduces the reader to open source software for computations, to enhance understanding of the material and nurture basic programming skills. For the more adventurous, a number of Outlooks included in the text offer a glimpse of possible mathematical excursions. This book supports readers in transition from high school to university mathematics, and will also benefit university students keen to explore the beginnings of algebraic number theory. It can be read either on its own or as a supporting text for first courses in algebra or number theory, and can also be used for a topics course on Diophantine equations.

This is a new text for the Abstract Algebra course. The author has written this text with a unique, yet historical, approach: solvability by radicals. This approach depends on a fields-first organization. However, professors wishing to commence their course with group theory will find that the Table of Contents is highly flexible, and contains a generous amount of group coverage.

Uses linear algebra and complex numbers throughout. Highlights all theorems (propositions, lemmas, corollaries) and definitions in boxes. Features an abudance of high-quality exercises.

Brief, clear, and well written, this introductory treatment bridges the gap between traditional and modern algebra. Includes exercises with complete solutions. The only prerequisite is high school-level algebra. 1959 edition.

This introduction to modern or abstract algebra addresses the conventional topics of groups, rings, and fields with symmetry as a unifying theme, while it introduces readers to the active practice of mathematics. Its accessible presentation is designed to teach users to think things through for themselves and change their view of mathematics from a system of rules and procedures, to an arena of inquiry. The volume provides plentiful exercises that give users the opportunity to participate and investigate algebraic and geometric ideas which are interesting, important, and worth thinking about. The volume addresses algebraic themes, basic theory of groups and products of groups, symmetries of polyhedra, actions of groups, rings, field extensions, and solvability and isometry groups. For those interested in a concrete presentation of abstract algebra.

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.

Praise for the Third Edition ". . . an expository masterpiece of the highest didacticvalue that has gained additional attractivity through the variousimprovements . . ."—Zentralblatt MATH The Fourth Edition of Introduction to Abstract Algebracontinues to provide an accessible approach to the basic structuresof abstract algebra: groups, rings, and fields. The book's uniquepresentation helps readers advance to abstract theory by presentingconcrete examples of induction, number theory, integers modulo n,and permutations before the abstract structures are defined.Readers can immediately begin to perform computations usingabstract concepts that are developed in greater detail later in thetext. The Fourth Edition features important concepts as well asspecialized topics, including: The treatment of nilpotent groups, including the Frattini andFitting subgroups Symmetric polynomials The proof of the fundamental theorem of algebra using symmetricpolynomials 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 problemsillustrate concepts and their applications, facilitating a completeunderstanding for readers regardless of their background inmathematics. A wealth of computational and theoretical exercises,ranging from basic to complex, allows readers to test theircomprehension of the material. In addition, detailed historicalnotes and biographies of mathematicians provide context for andilluminate the discussion of key topics. A solutions manual is alsoavailable for readers who would like access to partial solutions tothe book's exercises. Introduction to Abstract Algebra, Fourth Edition is anexcellent book for courses on the topic at the upper-undergraduateand beginning-graduate levels. The book also serves as a valuablereference and self-study tool for practitioners in the fields ofengineering, computer science, and applied mathematics.

A Concrete Approach to Abstract Algebra begins with a concrete and thorough examination of familiar objects like integers, rational numbers, real numbers, complex numbers, complex conjugation and polynomials, in this unique approach, the author builds upon these familar objects and then uses them to introduce and motivate advanced concepts in algebra in a manner that is easier to understand for most students. The text will be of particular interest to teachers and future teachers as it links abstract algebra to many topics wich arise in courses in algebra, geometry, trigonometry, precalculus and calculus. The final four chapters present the more theoretical material needed for graduate study.

A Concrete Approach to Abstract Algebra presents a solid and highly accessible introduction to abstract algebra by providing details on the building blocks of abstract algebra. It begins with a concrete and thorough examination of familiar objects such as integers, rational numbers, real numbers, complex numbers, complex conjugation, and polynomials. The author then builds upon these familiar objects and uses them to introduce and motivate advanced concepts in algebra in a manner that is easier to understand for most students. Exercises provide a balanced blend of difficulty levels, while the quantity allows the instructor a latitude of choices. The final four chapters present the more theoretical material needed for graduate study. This text will be of particular interest to teachers and future teachers as it links abstract algebra to many topics which arise in courses in algebra, geometry, trigonometry, precalculus, and calculus. Presents a more natural 'rings first' approach to effectively leading the student into the the abstract material of the course by the use of motivating concepts from previous math courses to guide the discussion of abstract algebra Bridges the gap for students by showing how most of the concepts within an abstract algebra course are actually tools used to solve difficult, but well-known problems Builds on relatively familiar material (Integers, polynomials) and moves onto more abstract topics, while providing a historical approach of introducing groups first as automorphisms Exercises provide a balanced blend of difficulty levels, while the quantity allows the instructor a latitude of choices

This book provides an introduction to the theory of dynamical systems with the aid of the Mathematica® computer algebra package. The book has a very hands-on approach and takes the reader from basic theory to recently published research material. Emphasized throughout are numerous applications to biology, chemical kinetics, economics, electronics, epidemiology, nonlinear optics, mechanics, population dynamics, and neural networks. Theorems and proofs are kept to a minimum. The first section deals with continuous systems using ordinary differential equations, while the second part is devoted to the study of discrete dynamical systems.

First Course in Algebra and Number Theory presents the basic concepts, tools, and techniques of modern algebra and number theory. It is designed for a full year course at the freshman or sophomore college level. The text is organized into four chapters. The first chapter is concerned with the set of all integers - positive, negative, and zero. It investigates properties of Z such as division algorithm, Euclidean algorithm, unique factorization, greatest common divisor, least common multiple, congruence, and radix representation. In chapter 2, additional axioms about Z were introduced and some of their consequences are discussed. The third chapter sets up terminologies about polynomials, solutions or roots of polynomial equations, and factorization of polynomials. Finally, chapter 4 studies logically simpler algebraic systems, known as "groups", algebraic objects with a single operation. The book is intended for students in the freshman and sophomore levels in college.

Provides teachers with strategies for differentiating math instruction for the K-8 classroom.

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.

This is a one-of-a-kind reference for anyone with a serious interest in mathematics. Edited by Timothy Gowers, a recipient of the Fields Medal, it presents nearly two hundred entries, written especially for this book by some of the world's leading mathematicians, that introduce basic mathematical tools and vocabulary; trace the development of modern mathematics; explain essential terms and concepts; examine core ideas in major areas of mathematics; describe the achievements of scores of famous mathematicians; explore the impact of mathematics on other disciplines such as biology, finance, and music--and much, much more. Unparalleled in its depth of coverage, The Princeton Companion to Mathematics surveys the most active and exciting branches of pure mathematics. Accessible in style, this is an indispensable resource for undergraduate and graduate students in mathematics as well as for researchers and scholars seeking to understand areas outside their specialties. Features nearly 200 entries, organized thematically and written by an international team of distinguished contributors Presents major ideas and branches of pure mathematics in a clear, accessible style Defines and explains important mathematical concepts, methods, theorems, and open problems Introduces the language of mathematics and the goals of mathematical research Covers number theory, algebra, analysis, geometry, logic, probability, and more Traces the history and development of modern mathematics Profiles more than ninety-five mathematicians who influenced those working today Explores the influence of mathematics on other disciplines Includes bibliographies, cross-references, and a comprehensive index Contributors incude: Graham Allan, Noga Alon, George Andrews, Tom Archibald, Sir Michael Atiyah, David Aubin, Joan Bagaria, Keith Ball, June Barrow-Green, Alan Beardon, David D. Ben-Zvi, Vitaly Bergelson, Nicholas Bingham, Béla Bollobás, Henk Bos, Bodil Branner, Martin R. Bridson, John P. Burgess, Kevin Buzzard, Peter J. Cameron, Jean-Luc Chabert, Eugenia Cheng, Clifford C. Cocks, Alain Connes, Leo Corry, Wolfgang Coy, Tony Crilly, Serafina Cuomo, Mihalis Dafermos, Partha Dasgupta, Ingrid Daubechies, Joseph W. Dauben, John W. Dawson Jr., Francois de Gandt, Persi Diaconis, Jordan S. Ellenberg, Lawrence C. Evans, Florence Fasanelli, Anita Burdman Feferman, Solomon Feferman, Charles Fefferman, Della Fenster, José Ferreirós, David Fisher, Terry Gannon, A. Gardiner, Charles C. Gillispie, Oded Goldreich, Catherine Goldstein, Fernando Q. Gouvêa, Timothy Gowers, Andrew Granville, Ivor Grattan-Guinness, Jeremy Gray, Ben Green, Ian Grojnowski, Niccolò Guicciardini, Michael Harris, Ulf Hashagen, Nigel Higson, Andrew Hodges, F. E. A. Johnson, Mark Joshi, Kiran S. Kedlaya, Frank Kelly, Sergiu Klainerman, Jon Kleinberg, Israel Kleiner, Jacek Klinowski, Eberhard Knobloch, János Kollár, T. W. Körner, Michael Krivelevich, Peter D. Lax, Imre Leader, Jean-François Le Gall, W. B. R. Lickorish, Martin W. Liebeck, Jesper Lützen, Des MacHale, Alan L. Mackay, Shahn Majid, Lech Maligranda, David Marker, Jean Mawhin, Barry Mazur, Dusa McDuff, Colin McLarty, Bojan Mohar, Peter M. Neumann, Catherine Nolan, James Norris, Brian Osserman, Richard S. Palais, Marco Panza, Karen Hunger Parshall, Gabriel P. Paternain, Jeanne Peiffer, Carl Pomerance, Helmut Pulte, Bruce Reed, Michael C. Reed, Adrian Rice, Eleanor Robson, Igor Rodnianski, John Roe, Mark Ronan, Edward Sandifer, Tilman Sauer, Norbert Schappacher, Andrzej Schinzel, Erhard Scholz, Reinhard Siegmund-Schultze, Gordon Slade, David J. Spiegelhalter, Jacqueline Stedall, Arild Stubhaug, Madhu Sudan, Terence Tao, Jamie Tappenden, C. H. Taubes, Rüdiger Thiele, Burt Totaro, Lloyd N. Trefethen, Dirk van Dalen, Richard Weber, Dominic Welsh, Avi Wigderson, Herbert Wilf, David Wilkins, B. Yandell, Eric Zaslow, Doron Zeilberger

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 ap preciating the formalism. To meet this problem, several texts have recently appeared introducing algebra through number theory.

While preparing and teaching 'Introduction to Geodesy I and II' to - dergraduate students at Stuttgart University, we noticed a gap which motivated the writing of the present book: Almost every topic that we taughtrequiredsomeskillsinalgebra,andinparticular,computeral- bra! From positioning to transformation problems inherent in geodesy and geoinformatics, knowledge of algebra and application of computer algebra software were required. In preparing this book therefore, we haveattemptedtoputtogetherbasicconceptsofabstractalgebra which underpin the techniques for solving algebraic problems. Algebraic c- putational algorithms useful for solving problems which require exact solutions to nonlinear systems of equations are presented and tested on various problems. Though the present book focuses mainly on the two ?elds,theconceptsand techniquespresented hereinarenonetheless- plicable to other ?elds where algebraic computational problems might be encountered. In Engineering for example, network densi?cation and robotics apply resection and intersection techniques which require - gebraic solutions. Solution of nonlinear systems of equations is an indispensable task in almost all geosciences such as geodesy, geoinformatics, geophysics (just to mention but a few) as well as robotics. These equations which require exact solutions underpin the operations of ranging, resection, intersection and other techniques that are normally used. Examples of problems that require exact solutions include; • three-dimensional resection problem for determining positions and orientation of sensors, e. g. , camera, theodolites, robots, scanners etc. , VIII Preface • coordinate transformation to match shapes and sizes of points in di?erent systems, • mapping from topography to reference ellipsoid and, • analytical determination of refraction angles in GPS meteorology.

Never HIGHLIGHT a Book Again Virtually all testable terms, concepts, persons, places, and events are included. Cram101 Textbook Outlines gives all of the outlines, highlights, notes for your textbook with optional online practice tests. Only Cram101 Outlines are Textbook Specific. Cram101 is NOT the Textbook. Accompanys: 9780521673761

Despite the importance of mathematics in our educational systems little is known about how abstract mathematical thinking emerges. Under the uniting thread of mathematical development, we hope to connect researchers from various backgrounds to provide an integrated view of abstract mathematical cognition. Much progress has been made in the last 20 years on how numeracy is acquired. Experimental psychology has brought to light the fact that numerical cognition stems from spatial cognition. The findings from neuroimaging and single cell recording experiments converge to show that numerical representations take place in the intraparietal sulcus. Further research has demonstrated that supplementary neural networks might be recruited to carry out subtasks; for example, the retrieval of arithmetic facts is done by the angular gyrus. Now that the neural networks in charge of basic mathematical cognition are identified, we can move onto the stage where we seek to understand how these basics skills are used to support the acquisition and use of abstract mathematical concepts.

The first and second editions of this successful textbook have been highly praised for their lucid and detailed coverage of abstract algebra. In this third edition, the author has carefully revised and extended his treatment, particularly the material on rings and fields, to provide an even more satisfying first course in abstract algebra.

Concrete Abstract AlgebraFrom Numbers to Gröbner BasesCambridge University Press

Based on the ontology and semantics of algebra, the computer algebra system Magma enables users to rapidly formulate and perform calculations in abstract parts of mathematics. Edited by the principal designers of the program, this book explores Magma. Coverage ranges from number theory and algebraic geometry, through representation theory and group theory to discrete mathematics and graph theory. Includes case studies describing computations underpinning new theoretical results.

While preparing and teaching ‘Introduction to Geodesy I and II’ to undergraduate students at Stuttgart University, we noticed a gap which motivated the writing of the present book: Almost every topic that we taught required some skills in algebra, and in particular, computer algebra! From positioning to transformation problems inherent in geodesy and geoinformatics, knowledge of algebra and application of computer algebra software were required. In preparing this book therefore, we have attempted to put together basic concepts of abstract algebra which underpin the techniques for solving algebraic problems. Algebraic computational algorithms useful for solving problems which require exact solutions to nonlinear systems of equations are presented and tested on various problems. Though the present book focuses mainly on the two ?elds, the concepts and techniques presented herein are nonetheless applicable to other ?elds where algebraic computational problems might be encountered. In Engineering for example, network densi?cation and robotics apply resection and intersection techniques which require algebraic solutions. Solution of nonlinear systems of equations is an indispensable task in almost all geosciences such as geodesy, geoinformatics, geophysics (just to mention but a few) as well as robotics. These equations which require exact solutions underpin the operations of ranging, resection, intersection and other techniques that are normally used. Examples of problems that require exact solutions include; • three-dimensional resection problem for determining positions and orientation of sensors, e. g. , camera, theodolites, robots, scanners etc.

This book represents a complete course in abstract algebra, providing instructors with flexibility in the selection of topics to be taught in individual classes. All the topics presented are discussed in a direct and detailed manner. Throughout the text, complete proofs have been given for all theorems without glossing over significant details or leaving important theorems as exercises. The book contains many examples fully worked out and a variety of problems for practice and challenge. Solutions to the odd-numbered problems are provided at the end of the book. This new edition contains an introduction to lattices, a new chapter on tensor products and a discussion of the new (1993) approach to the celebrated Lasker–Noether theorem. In addition, there are over 100 new problems and examples, particularly aimed at relating abstract concepts to concrete situations. Introduction to Abstract Algebra, Second Edition presents abstract algebra as the main tool underlying discrete mathematics and the digital world. It avoids the usual groups first/rings first dilemma by introducing semigroups and monoids, the multiplicative structures of rings, along with groups.This new edition of a widely adopted textbook covers