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Data Science Foundations Fionn Murtagh 2017-09-22 "Data Science Foundations is most welcome and, indeed, a piece of literature that the field is very much in need of...quite different from most data analytics texts which largely ignore foundational concepts and simply present a cookbook of methods...a very useful text and I would certainly use it in my teaching." - Mark Girolami, Warwick University Data Science encompasses the traditional disciplines of mathematics, statistics, data analysis, machine learning, and pattern recognition. This book is designed to provide a new framework for Data Science, based on a solid foundation in mathematics and computational science. It is written in an accessible style, for readers who are engaged with the subject but not necessarily experts in all aspects. It includes a wide range of case studies from diverse fields, and seeks to inspire and motivate the reader with respect to data, associated information, and derived knowledge.

Applied Mechanics Reviews 1973

Geometry of Lengths, Areas, and Volumes: Two-Dimensional Spaces, Volume 1 James W. Cannon 2017-11-16 This is the first of a three volume collection devoted to the geometry, topology, and curvature of 2-dimensional spaces. The collection provides a guided tour through a wide range of topics by one of the twentieth century's masters of geometric topology. The books are accessible to college and graduate students and provide perspective and insight to mathematicians at all levels who are interested in geometry and topology. The first volume begins with length measurement as dominated by the Pythagorean Theorem (three proofs) with application to number theory; areas measured by slicing and scaling, where Archimedes uses the physical weights and balances to calculate spherical volume and is led to the invention of calculus; areas by cut and paste, leading to the Bolyai-Gerwien theorem on squaring polygons; areas by counting, leading to the theory of continued fractions, the efficient rational approximation of real numbers, and Minkowski's theorem on convex bodies; straight-edge and compass constructions, giving complete proofs, including the transcendence of e and π , of the impossibility of squaring the circle, duplicating the cube, and trisecting the angle; and finally to a construction of the Hausdorff-Banach-Tarski paradox that shows some spherical sets are too complicated and cloudy to admit a well-defined notion of area.

High School Math Common-Core Geometry Practice/Problem Solving Workbook Grade 9/10 Prentice HALL 2011-04

Mathematical Foundations of Elasticity Jerrold E. Marsden 1983 Graduate-level study approaches mathematical foundations of three-dimensional elasticity using modern differential geometry and functional analysis. It & presents a & classical subject in a modern setting, with examples of newer mathematical contributions. 1983 edition.

Sataloff's Comprehensive Textbook of Otolaryngology: Head & Neck Surgery Robert T Sataloff 2015-11-30 Sataloff's Comprehensive Textbook of Otolaryngology: Head & Neck Surgery - Laryngology is part of a multi-volume textbook covering basic and clinical science across the entire field of otolaryngology. Volumes in the set include; otology, neurotology and skull-based surgery; rhinology, allergy and immunology; facial plastic and reconstructive surgery; head and neck surgery; and paediatric otolaryngology. The full set is enhanced by over 5000 full colour images and illustrations, spanning nearly 6000 pages, complete with a comprehensive index on DVD. Edited by Robert T Sataloff from Drexel University College of Medicine, Philadelphia, this volume includes contributions from internationally recognised experts in otolaryngology, ensuring authoritative content throughout. Sataloff's Comprehensive Textbook of Otolaryngology: Head & Neck Surgery - Laryngology is an indispensable, in-depth guide to the field for all otolaryngology practitioners. Key Points Textbook of laryngology, part of six-volume set covering the entire field of otolaryngology Volumes include otology/neurotology, rhinology, plastic surgery, head and neck surgery, and paediatric otolaryngology Over 5000 full colour images and illustrations across six volumes Edited by Robert T Sataloff, with contributions from internationally recognised otolaryngology experts

Spatial Database Systems Albert K.W. Yeung 2007-05-23 This book places spatial data within the broader domain of information technology (IT) while providing a comprehensive and coherent explanation of the guiding principles, methods, implementation and operational management of spatial databases within the workplace. The text explains the key concepts, issues and processes of spatial data implementation and provides a holistic management perspective.

Handbook of Applied Mathematics Carl Pearson 2012-12-06 Most of the topics in applied mathematics dealt with in this handbook can be grouped rather loosely under the term analysis. They involve results and techniques which experience has shown to be of utility in a very broad variety of applications. Although care has been taken to collect certain basic results in convenient form, it is not the purpose of this handbook to duplicate the excellent collections of tables and formulas available in the National Bureau of Standards Handbook of Mathematical Functions (AMS Series 55, U.S. Government Printing Office) and in the references given therein. Rather, the emphasis in the present handbook is on technique, and we are indeed fortunate that a number of eminent applied mathematicians have been willing to share with us their interpretations and experiences. To avoid the necessity of frequent and disruptive cross-referencing, it is expected that the reader will make full use of the index. Moreover, each chapter has been made as self-sufficient as is feasible. This procedure has resulted in occasional duplication, but as compensation for this the reader may appreciate the availability of different points of view concerning certain topics of current interest. As editor, I would like to express my appreciation to the contributing authors, to the reviewers, to the editorial staff of the publisher, and to the many secretaries and typists who have worked on the manuscript; without the partnership of all of these people, this handbook would not have been possible.

Foundations of Plane Geometry Harvey I. Blau 2003 \1\textformat=02>yet straightforward and accessible"exposition of the foundations of.

Fundamentals of Complementary, Alternative, and Integrative Medicine - E-Book Marc S. Micozzi 2018-10-08 Get a solid, global foundation of the therapies and evidence-based clinical applications of CAI. Fundamentals of Complementary, Alternative, and Integrative Medicine, 6th Edition is filled with the most up-to-date information on scientific theory and research of holistic medicine from experts around the world. The 6th edition of this acclaimed text includes all new content on quantum biology and biofields in health and nursing, integrative mental health care, and homeopathic medicine. Its wide range of topics explores therapies most commonly seen in the U.S., such as energy medicine, mind-body therapies, and reflexology along with traditional medicine and practices from around the world. With detailed coverage of historic and contemporary applications, this text is a solid resource for all practitioners in the medical, health, and science fields! Coverage of CAI therapies and systems includes those most commonly encountered or growing in popularity, so you can carefully evaluate each treatment. An evidence-based approach focuses on treatments best supported by clinical trials and scientific evidence. Observations from mechanisms of action to evidence of clinical efficacy answers questions of how, why, and when CAM therapies work. A unique synthesis of information, including historical usage, cultural and social analysis, current basic science theory and research, and a wide range of clinical investigations and observations, makes this text a focused, authoritative resource. Global coverage includes discussions of traditional healing arts from Europe, Asia, Africa, and the Americas. Clinical guides for selecting therapies, and new advances for matching the appropriate therapy to the individual patient, enables you to offer and/or recommend individualized patient care. Expert contributors include well-known writers such as Kevin Ergil, Patch Adams, Joseph Pizzorno, and Marc Micozzi. A unique history of CAI traces CAM therapies from

their beginnings to present day practices. Suggested readings and references on the companion website list the best resources for further research and study. NEW! Added chapters offer fresh perspective on quantum biology and biofields in health and nursing, integrative mental health care, and homeopathic medicine. NEW! Updated chapters feature new content and topics, including: challenges in integrative medicine, legal issues, CAI in the community, psychometric evaluation, placebo effect, stress management, and much more! NEW! Updated guides on common herbal remedies in clinical practice, East and Southeast Asia, and native North and South America deliver the latest information. NEW! Basic science content and new theory and research studies cover a wide range of sciences such as biophysics, biology and ecology, ethnomedicine, psychometrics, neurosciences, and systems theory. NEW! Expanded global ethnomedical systems includes new content on Shamanism and Neo-Shamanism, Central and North Asia, Southeast Asia, Nepal and Tibet, Hawaii and South Pacific, Alaska and Pacific Northwest, and contemporary global healthcare.

Projective Geometry Albrecht Beutelspacher 1998-01-29 A textbook on projective geometry that emphasises applications in modern information and communication science.

Refrigeration Engineering 1951 English abstracts from Kholodil'naia tekhnika.

Geometry from a Differentiable Viewpoint John McCleary 1994 This book offers a new treatment of differential geometry which is designed to make the subject approachable for advanced undergraduates.

Encyclopedia of Education and Human Development Stephen J. Farenga 2015-07-17 This comprehensive and exhaustive reference work on the subject of education from the primary grades through higher education combines educational theory with practice, making it a unique contribution to the educational reference market. Issues related to human development and learning are examined by individuals whose specializations are in diverse areas including education, psychology, sociology, philosophy, law, and medicine. The book focuses on important themes in education and human development. Authors consider each entry from the perspective of its social and political conditions as well as historical underpinnings. The book also explores the people whose contributions have played a seminal role in the shaping of educational ideas, institutions, and organizations, and includes entries on these institutions and organizations. This work integrates numerous theoretical frameworks with field based applications from many areas in educational research.

Heat Conduction Using Greens Functions Kevin Cole 2010-07-16 Since its publication more than 15 years ago, Heat Conduction Using Green's Functions has become the consummate heat conduction treatise from the perspective of Green's functions-and the newly revised Second Edition is poised to take its place. Based on the authors' own research and classroom experience with the material, this book organizes the so

Resources in Education 1998

Mathematics for Machine Learning Marc Peter Deisenroth 2020-03-31 Distills key concepts from linear algebra, geometry, matrices, calculus, optimization, probability and statistics that are used in machine learning.

Principles of Engineering Mechanics Millard F. Beatty 2010-06-01 Separation of the elements of classical mechanics into kinematics and dynamics is an uncommon tutorial approach, but the author uses it to advantage in this two-volume set. Students gain a mastery of kinematics first - a solid foundation for the later study of the free-body formulation of the dynamics problem. A key objective of these volumes, which present a vector treatment of the principles of mechanics, is to help the student gain confidence in transforming problems into appropriate mathematical language that may be manipulated to give useful physical conclusions or specific numerical results. In the first volume, the elements of vector calculus and the matrix algebra are reviewed in appendices. Unusual mathematical topics, such as singularity functions and some elements of tensor analysis, are introduced within the text. A logical and systematic building of well-known kinematic concepts, theorems, and formulas, illustrated by examples and problems, is presented offering insights into both fundamentals and applications. Problems amplify the material and pave the way for advanced study of topics in mechanical design analysis, advanced kinematics of mechanisms and analytical dynamics, mechanical vibrations and controls, and continuum mechanics of solids and fluids. Volume I of Principles of Engineering Mechanics provides the basis for a stimulating and rewarding one-term course for advanced undergraduate and first-year graduate students specializing in mechanics, engineering science, engineering physics, applied mathematics, materials science, and mechanical, aerospace, and civil engineering. Professionals working in related fields of applied mathematics will find it a practical review and a quick reference for questions involving basic kinematics.

Non-Euclidean Geometry and Curvature: Two-Dimensional Spaces, Volume 3 James W. Cannon 2017-11-08 This is the final volume of a three volume collection devoted to the geometry, topology, and curvature of 2-dimensional spaces. The collection provides a guided tour through a wide range of topics by one of the twentieth century's masters of geometric topology. The books are accessible to college and graduate students and provide perspective and insight to mathematicians at all levels who are interested in geometry and topology. Einstein showed how to interpret gravity as the dynamic response to the curvature of space-time. Bill Thurston showed us that non-Euclidean geometries and curvature are essential to the understanding of low-dimensional spaces. This third and final volume aims to give the reader a firm intuitive understanding of these concepts in dimension 2. The volume first demonstrates a number of the most important properties of non-Euclidean geometry by means of simple infinite graphs that approximate that geometry. This is followed by a long chapter taken from lectures the author gave at MSRI, which explains a more classical view of hyperbolic non-Euclidean geometry in all dimensions. Finally, the author explains a natural intrinsic obstruction to flattening a triangulated polyhedral surface into the plane without distorting the constituent triangles. That obstruction extends intrinsically to smooth surfaces by approximation and is called curvature. Gauss's original definition of curvature is extrinsic rather than intrinsic. The final two chapters show that the book's intrinsic definition is equivalent to Gauss's extrinsic definition (Gauss's "Theorema Egregium" ("Great Theorem")).

Mathematical Foundations in Engineering and Science Anthony N. Michel 1981
Intelligent Control Systems Using Soft Computing Methodologies Ali Zilouchian 2001-03-27 In recent years, intelligent control has emerged as one of the most active and fruitful areas of research and development. Until now, however, there has been no comprehensive text that explores the subject with focus on the design and analysis of biological and industrial applications. Intelligent Control Systems Using Soft Computing Methodologies does all that and more. Beginning with an overview of intelligent control methodologies, the contributors present the fundamentals of neural networks, supervised and unsupervised learning, and recurrent networks. They address various implementation issues, then explore design and verification of neural networks for a variety of applications, including medicine, biology, digital signal processing, object recognition, computer networking, desalination technology, and oil refinery and chemical processes. The focus then shifts to fuzzy logic, with a review of the fundamental and theoretical aspects, discussion of implementation issues, and examples of applications, including control of autonomous underwater vehicles, navigation of space vehicles, image processing, robotics, and energy management systems. The book concludes with the integration of genetic algorithms into the paradigm of soft computing methodologies, including several more industrial examples, implementation issues, and open problems and open problems related to intelligent control technology. Suitable as a textbook or a reference, Intelligent Control Systems explores recent advances in the field from both the theoretical and the practical viewpoints. It also integrates intelligent control design methodologies

to give designers a set of flexible, robust controllers and provide students with a tool for solving the examples and exercises within the book.

Geometric Methods and Applications Jean Gallier 2011-06-04 This book is an introduction to the fundamental concepts and tools needed for solving problems of a geometric nature using a computer. It attempts to fill the gap between standard geometry books, which are primarily theoretical, and applied books on computer graphics, computer vision, robotics, or machine learning. This book covers the following topics: affine geometry, projective geometry, Euclidean geometry, convex sets, SVD and principal component analysis, manifolds and Lie groups, quadratic optimization, basics of differential geometry, and a glimpse of computational geometry (Voronoi diagrams and Delaunay triangulations). Some practical applications of the concepts presented in this book include computer vision, more specifically contour grouping, motion interpolation, and robot kinematics. In this extensively updated second edition, more material on convex sets, Farkas's lemma, quadratic optimization and the Schur complement have been added. The chapter on SVD has been greatly expanded and now includes a presentation of PCA. The book is well illustrated and has chapter summaries and a large number of exercises throughout. It will be of interest to a wide audience including computer scientists, mathematicians, and engineers. Reviews of first edition: "Gallier's book will be a useful source for anyone interested in applications of geometrical methods to solve problems that arise in various branches of engineering. It may help to develop the sophisticated concepts from the more advanced parts of geometry into useful tools for applications." (Mathematical Reviews, 2001) "...it will be useful as a reference book for postgraduates wishing to find the connection between their current problem and the underlying geometry." (The Australian Mathematical Society, 2001)

Introduction to Real Analysis William F. Trench 2003 Using an extremely clear and informal approach, this book introduces readers to a rigorous understanding of mathematical analysis and presents challenging math concepts as clearly as possible. The real number system. Differential calculus of functions of one variable. Riemann integral functions of one variable. Integral calculus of real-valued functions. Metric Spaces. For those who want to gain an understanding of mathematical analysis and challenging mathematical concepts.

Topology as Fluid Geometry James W. Cannon 2017 This is the second of a three volume collection devoted to the geometry, topology, and curvature of 2-dimensional spaces. The collection provides a guided tour through a wide range of topics by one of the twentieth century's masters of geometric topology. The books are accessible to college and graduate students and provide perspective and insight to mathematicians at all levels who are interested in geometry and topology. The second volume deals with the topology of 2-dimensional spaces. The attempts encountered in Volume 1 to understand length and area in the plane lead to examples most easily described by the methods of topology (fluid geometry): finite curves of infinite length, 1-dimensional curves of positive area, space-filling curves (Peano curves), 0-dimensional subsets of the plane through which no straight path can pass (Cantor sets), etc. Volume 2 describes such sets. All of the standard topological results about 2-dimensional spaces are then proved, such as the Fundamental Theorem of Algebra (two proofs), the No Retraction Theorem, the Brouwer Fixed Point Theorem, the Jordan Curve Theorem, the Open Mapping Theorem, the Riemann-Hurwitz Theorem, and the Classification Theorem for Compact 2-manifolds. Volume 2 also includes a number of theorems usually assumed without proof since their proofs are not readily available, for example, the Zippin Characterization Theorem for 2-dimensional spaces that are locally Euclidean, the Schoenflies Theorem characterizing the disk, the Triangulation Theorem for 2-manifolds, and the R. L. Moore's Decomposition Theorem so useful in understanding fractal sets.

Advanced Calculus Lynn Harold Loomis 2014-02-26 An authorized reissue of the long out of print classic textbook, Advanced Calculus by the late Dr Lynn Loomis and Dr Shlomo Sternberg both of Harvard University has been a revered but hard to find textbook for the advanced calculus course for decades. This book is based on an honors course in advanced calculus that the authors gave in the 1960's. The foundational material, presented in the unstarred sections of Chapters 1 through 11, was normally covered, but different applications of this basic material were stressed from year to year, and the book therefore contains more material than was covered in any one year. It can accordingly be used (with omissions) as a text for a year's course in advanced calculus, or as a text for a three-semester introduction to analysis. The prerequisites are a good grounding in the calculus of one variable from a mathematically rigorous point of view, together with some acquaintance with linear algebra. The reader should be familiar with limit and continuity type arguments and have a certain amount of mathematical sophistication. As possible introductory texts, we mention Differential and Integral Calculus by R Courant, Calculus by T Apostol, Calculus by M Spivak, and Pure Mathematics by G Hardy. The reader should also have some experience with partial derivatives. In overall plan the book divides roughly into a first half which develops the calculus (principally the differential calculus) in the setting of normed vector spaces, and a second half which deals with the calculus of differentiable manifolds.

Foundation Maths Anthony Croft 2011-09-21 Were you looking for the book with access to MyMathLab? This product is the book alone, and does NOT come with access to MyMathLab. Buy Foundation Maths with MyMathLab access card 5e (ISBN 9780273730767) if you need access to the MyLab as well, and save money on this brilliant resource. Foundation Maths has been written for students taking higher and further education courses who have not specialised in mathematics on post-16 qualifications and need to use mathematical tools in their courses. It is ideally suited to those studying marketing, business studies, management, science, engineering, social science, geography, combined studies and design. It will be useful for those who lack confidence and who need careful, steady guidance in mathematical methods. For those whose mathematical expertise is already established, the book will be a helpful revision and reference guide. The style of the book also makes it suitable for self-study and distance learning. Need extra support? This product is the book alone, and does NOT come with access to MyMathLab. This title can be supported by MyMathLab, an online homework and tutorial system which can be fully integrated into an instructor's course. You can benefit from MyMathLab at a reduced price by purchasing a pack containing a copy of the book and an access card for MyMathLab: Foundation Maths with MyMathLab access card 5e (ISBN 9780273730767). Alternatively, buy access to MyMathLab and the eText - an online version of the book - online at www.mymathlab.com. For educator access, contact your Pearson Account Manager. To find out who your Account Manager is, visit www.pearsoned.co.uk/relocator

Prentice Hall Geometry 1998
Experimental Methods for the Analysis of Optimization Algorithms Thomas Bartz-Beielstein 2010-11-02 In operations research and computer science it is common practice to evaluate the performance of optimization algorithms on the basis of computational results, and the experimental approach should follow accepted principles that guarantee the reliability and reproducibility of results. However, computational experiments differ from those in other sciences, and the last decade has seen considerable methodological research devoted to understanding the particular features of such experiments and assessing the related statistical

methods. This book consists of methodological contributions on different scenarios of experimental analysis. The first part overviews the main issues in the experimental analysis of algorithms, and discusses the experimental cycle of algorithm development; the second part treats the characterization by means of statistical distributions of algorithm performance in terms of solution quality, runtime and other measures; and the third part collects advanced methods from experimental design for configuring and tuning algorithms on a specific class of instances with the goal of using the least amount of experimentation. The contributor list includes leading scientists in algorithm design, statistical design, optimization and heuristics, and most chapters provide theoretical background and are enriched with case studies. This book is written for researchers and practitioners in operations research and computer science who wish to improve the experimental assessment of optimization algorithms and, consequently, their design.

Mathematical Foundations of System Safety Engineering Richard R. Zito 2019-11-12 This graduate-level textbook elucidates low-risk and fail-safe systems in mathematical detail. It addresses, in particular, problems where mission-critical performance is paramount, such as in aircraft, missiles, nuclear reactors and weapons, submarines, and many other types of systems where "failure" can result in overwhelming loss of life and property. The book is divided into four parts: Fundamentals, Electronics, Software, and Dangerous Goods. The first part on Fundamentals addresses general concepts of system safety engineering that are applicable to any type of system. The second part, Electronics, addresses the detection and correction of electronic hazards. In particular, the Bent Pin Problem, Sneak Circuit Problem, and related electrical problems are discussed with mathematical precision. The third part on Software addresses predicting software failure rates as well as detecting and correcting deep software logical flaws (called defects). The fourth part on Dangerous Goods presents solutions to three typical industrial chemical problems faced by the system safety engineer during the design, storage, and disposal phases of a dangerous goods' life cycle.

Java 3D API Jump-start Aaron E. Walsh 2002 Explains how to use Java to create to create three-dimensional graphics applications.

Magill's Survey of Science Frank Northen Magill 1992

Geometry HOLT MCDUGAL 2009-12-31 Essentials of geometry -- Reasoning and proof -- Parallel and perpendicular lines -- Congruent triangles -- Relationships within triangles -- Similarity -- Right triangles and trigonometry -- Quadrilaterals -- Properties of transformations -- Properties of circles -- Measuring length and area -- Surface area and volume of solids.

Participant group reports James Howard Zant 1960

An Introduction to Philosophical Analysis John Hospers 1967 This book provides an in-depth, problem-oriented introduction to philosophical analysis using an extremely clear, readable approach. The "Fourth Edition" does not only update coverage throughout the book, but also restores the introductory chapter "Words and the World" the most distinguished, widely acclaimed feature of the first two editions. "

A Comprehensive Introduction to Differential Geometry Michael Spivak 1975

Flexible Robot Dynamics and Controls Rush D. Robinett III 2012-12-06 This book is the result of over ten (10) years of research and development in flexible robots and structures at Sandia National Laboratories. The authors decided to collect this wealth of knowledge into a set of viewgraphs in order to teach a graduate class in Flexible Robot Dynamics and Controls within the Mechanical Engineering Department at the University of New Mexico (UNM). These viewgraphs, encouragement from several students, and many late nights have produced a book that should provide an upper-level undergraduate and graduate textbook and a reference for experienced professionals. The content of this book spans several disciplines including structural dynamics, system identification, optimization, and linear, digital, and nonlinear control theory which are developed from several points of view including electrical, mechanical, and aerospace engineering as well as engineering mechanics. As a result, the authors believe that this book demonstrates the value of solid applied theory when developing hardware solutions to real world problems. The reader will find many real world applications in this book and will be shown the applicability of these techniques beyond flexible structures which, in turn, shows the value of multidisciplinary education and teaming.

Plane-Strain Slip-Line Fields for Metal-Deformation Processes W. Johnson 2013-09-03 Plane-Strain Slip-Line Fields for Metal-Deformation Processes: A Source Book and Bibliography provides information pertinent to the theory and application of plain-strain slip fields to metal-working problems. This book discusses the industrial importance of axial symmetry. Organized into seven chapters, this book begins with an overview of the oldest processes of metal forming, including forging, coining, hammering, drifting, cutting, or parting. This text then examines the basic aspects of the basic theory of classical plasticity. Other chapters consider the governing equations of the plane plastic flow of a rigid-perfectly plastic solid. This book discusses as well the methods for the solution of problems of plane plastic flow of a rigid-perfectly plastic solid. The final chapter deals with the application of the theory of plasticity to the quasi-static plane-strain deformation of an isotropic rigid-perfectly plastic, rate insensitive material. This book is a valuable resource for mechanical engineers, materials scientists, teachers, and research workers.

Advanced Calculus of Several Variables C. H. Edwards 2014-05-10 Advanced Calculus of Several Variables provides a conceptual treatment of multivariable calculus. This book emphasizes the interplay of geometry, analysis through linear algebra, and approximation of nonlinear mappings by linear ones. The classical applications and computational methods that are responsible for much of the interest and importance of calculus are also considered. This text is organized into six chapters. Chapter I deals with linear algebra and geometry of Euclidean n -space R^n . The multivariable differential calculus is treated in Chapters II and III, while multivariable integral calculus is covered in Chapters IV and V. The last chapter is devoted to venerable problems of the calculus of variations. This publication is intended for students who have completed a standard introductory calculus sequence.

Magill's Survey of Science: The standard model-X-ray determination of molecular structure Frank Northen Magill 1992

Tensor Spaces and Exterior Algebra Takeo Yokonuma 1992 This book explains, as clearly as possible, tensors and such related topics as tensor products of vector spaces, tensor algebras, and exterior algebras. You will appreciate Yokonuma's lucid and methodical treatment of the subject. This book is useful in undergraduate and graduate courses in multilinear algebra. Tensor Spaces and Exterior Algebra begins with basic notions associated with tensors. To facilitate understanding of the definitions, Yokonuma often presents two or more different ways of describing one object. Next, the properties and applications of tensors are developed, including the classical definition of tensors and the description of relative tensors. Also discussed are the algebraic foundations of tensor calculus and applications of exterior algebra to determinants and to geometry. This book closes with an examination of algebraic systems with bilinear multiplication. In particular, Yokonuma discusses the theory of replicas of Chevalley and several properties of Lie algebras deduced from them.