An Introduction To Matrices Sets And Groups For Science Students Dover Books On Mathematics

Graduate-level text considers existence and continuity theorems, integral curves of a system of 2 differential equations, systems of n-differential equations, general theory of dynamical systems, systems with an integral invariant, more. 1960 edition.

This outstanding text offers undergraduate students of physics, chemistry, and engineering a concise, readable introduction to matrices, sets, and groups. Concentrating mainly on matrix theory, the book is virtually self-contained, requiring a minimum of mathematical knowledge and providing all the background necessary to develop a thorough comprehension of the subject. Beginning with a chapter on sets, mappings, and transformations, the treatment advances to considerations of matrix algebra, inverse and related matrices, and systems of linear algebraic equations. Additional topics include eigenvalues and eigenvectors, diagonalisation and functions of matrices, and group theory. Each chapter contains a selection of worked examples and many problems with answers, enabling readers to test their understanding and ability to apply concepts.

A young soldier in training for the special forces in Vietnam learns how to rid himself of anxieties under stress and other emotional factors that may hinder his effectiveness in combat.

An Introduction to the Theory of Canonical Matrices

Elements of Real Analysis

A Very Short Introduction

Introduction to Applied Linear Algebra

Introduction to Matrix Algebra

Four decades ago, J.P. Den Hartog, then Professor of Mechanical Engineering at Massachusetts Institute of Technology, wrote Strength of Materials, an elementary text that still enjoys great popularity in engineering schools throughout the world. Widely used as a classroom resource, it has also become a favorite reference and refresher on the subject among engineers everywhere. This is the first paperback edition of an equally successful text by this highly respected engineer and author. Advanced Strength of Materials takes this important subject into areas of greater difficulty, masterfully bridging its elementary aspects and its most formidable advanced reaches. The book reflects Den Hartog's impressive talent for making lively, discursive and often witty presentations of his subject, and his unique ability to combine the scholarly insight of a distinguished scientist with the practical, problem-solving orientation of an experienced industrial engineer. The concepts here explored in depth include torsion, rotating disks, membrane stresses in shells, bending of flat plates, beams on elastic foundation, the two-dimensional theory of elasticity, the energy method and buckling. The presentation is aimed at the student who has a one-semester course in elementary strength of materials. The book includes an especially thorough and valuable section of problems and answers which give both students and professionals practice in techniques and clear illustrations of applications.

This rich collection of fully worked problems in many areas of mathematics covers all the important subjects students are likely to encounter in their courses, from introductory to final-year undergraduate classes. Because lecture courses tend to focus on theory rather than examples, these exercises offer a valuable complement to classroom teachings, promoting the understanding of mathematical techniques and helping students prepare for exams. They will prove useful to undergraduates in mathematics; students in engineering, physics, and chemistry; and postgraduate scientists looking for a way to refresh their skills in specific topics. The problems can supplement lecture notes and any conventional text. Starting with functions, inequalities, limits, differentiation, and integration, topics encompass integral inequalities, power series and convergence, complex variables, hyperbolic function, vector and matrix algebra, Laplace transforms, Fourier series, vector calculus, and many other subjects.

Concise, masterly survey of a substantial part of modern matrix theory introduces broad range of ideas involving both matrix theory and matrix inequalities. Also, convexity and matrices, localization of characteristic roots, proofs of classical theorems and results in contemporary research literature, more. Undergraduate-level. 1969 edition. Bibliography.

An Introduction to Matrices, Sets and Groups for Science Students. [With Answers to Problems.].

Introduction to Linear and Matrix Algebra

An Introduction to Sets, Groups, and Matices

Lectures on Partial Differential Equations

Vectors, Matrices, and Least Squares

Elementary, yet authoritative and scholarly, this book offers an excellent brief introduction to the classical theory of differential geometry. It is aimed at advanced undergraduate and graduate students who will find it not only highly readable but replete with illustrations carefully selected to help stimulate the student's visual understanding of geometry. The text features an abundance of problems, most of which are simple enough for class use, and often convey an interesting geometrical fact. A selection of more difficult problems has been included to challenge the ambitious student. Written by a noted mathematician and historian of mathematics, this volume presents the fundamental conceptions of the theory of curves and surfaces and applies them to a number of examples. Dr. Struik has enhanced the treatment with copious historical, biographical, and bibliographical references that place the theory in context and encourage the student to consult original sources and discover additional important ideas there. For this second edition, Professor Struik made some corrections and added an appendix with a sketch of the application of Cartan's method of Pfaffians to curve and surface theory. The result was to further increase the merit of this stimulating, thought-provoking text — ideal for classroom use, but also perfectly suited for self-study. In this attractive, inexpensive paperback edition, it belongs in the library of any mathematician or student of mathematics interested in differential geometry.

Students receive the benefits of axiom-based mathematical reasoning as well as a grasp of concrete formulations. Suitable as a primary or supplementary text for college-level courses in linear algebra. 1957 edition.

Geared toward undergraduates in the physical sciences, this text offers a very useful review of mathematical methods that students will employ throughout their education and beyond. Includes problems, answers. 1973 edition.

An Introduction to Matrices, Sets and Groups for Science Students

Introduction to Random Matrices

Second Edition

Matrices and Linear Transformations

An Introduction to Random Matrices

Modern developments of Random Matrix Theory as well as pedagogical approaches to the standard core of the discipline are surprisingly hard to find in a well-organized, readable and user-friendly fashion. This slim and agile book, written in a pedagogical and hands-on style, without sacrificing formal rigor fills this gap. It brings Ph.D. students in Physics, as well as more senior practitioners, through the standard tools and results on random matrices, with an eye on most recent developments that are not usually covered in introductory texts. The focus is mainly on random matrices with real spectrum.The main guiding threads throughout the book are the Gaussian Ensembles. In particular, Wigner's semicircle law is derived multiple times to illustrate several techniques (e.g., Coulomb gas approach, replica theory).Most chapters are accompanied by Matlab codes (stored in an online repository) to guide readers through the numerical check of most analytical results.

Excellent brief introduction presents fundamental theory of curves and surfaces and applies them to a number of examples. Topics include curves, theory of surfaces, fundamental equations, envelopes, more. Many problems and solutions. Bibliography.

Fundamentals of analytic function theory -- plus lucid exposition of 5 important applications: potential theory, ordinary differential equations, Fourier transforms, Laplace transforms, and asymptotic expansions. Includes 66 figures.

Matrices and Transformations

Matrices, Sets, and Groups

An Introduction for Students of Science and Engineering

Problem Based Journey From Elementary Number Theory To An Introduction To Matrix Theory, A: The President Problems

An Introduction to Matrices, Sets and Groups for Science StudentsCourier Dover Publications

This introduction invites readers to revisit algebra and appreciate the elegance and power of equations and inequalities. Offering a clear explanation of algebra through theory and example, Higgins shows how equations lead to complex numbers, matrices, groups, rings, and fields.--

Classic text explores intermediate steps between basics of calculus and ultimate stage of mathematics -- abstraction and generalization. Covers fundamental concepts, real number system, point sets, functions of a real variable, Fourier series, more. Over 500 exercises.

Qualitative Theory of Differential Equations

An Introduction

Applied Complex Variables

Theory and Practice

An Introduction to Semi-tensor Product of Matrices and Its Applications

Suitable for advanced undergraduate and graduate students, this text presents the general properties of partial differential equations, including the elementary theory of complex variables. Topics include one-dimensional wave equation, properties of elliptic and parabolic equations, separation of variables and Fourier series, nonhomogeneous problems, and analytic functions of a complex variable. Solutions. 1965 edition.

Elementary transformations and bilinear and quadratic forms; canonical reduction of equivalent matrices; subgroups of the group of equivalent transformations; and rational and classical canonical forms. 1952 edition. 275 problems.

In this appealing and well-written text, Richard Bronson gives readers a substructure for a firm understanding of the abstract concepts of linear algebra and its applications. The author starts with the concrete and computational, and leads the reader to a choice of major applications (Markov chains, least-squares approximation, and solution of differential equations using Jordan normal form). The first three chapters address the basics: matrices, vector spaces, and linear transformations. The next three cover eigenvalues, Euclidean inner products, and Jordan canonical forms, offering possibilities that can be tailored to the instructor's taste and to the length of the course. Bronson's approach to computation is modern and algorithmic, and his theory is clean and straightforward. Throughout, the views of the theory presented are broad and balanced. Key material is highlighted in the text and summarized at the end of each chapter. The book also includes ample exercises with answers and hints. With its inclusion of all the needed features, this text will be a pleasure for professionals, teachers, and students. - Introduces deductive reasoning and helps the reader develop a facility with mathematical proofs - Gives computational algorithms for finding eigenvalues and eigenvectors - Provides a balanced approach to computation and theory - Superb motivation and writing - Excellent exercise sets, ranging from drill to theoretical/challeging - Useful and interesting applications not found in other introductory linear algebra texts

An Introduction to Binary Numbers, Sets, Matrices and Statistics

An Introduction with Special Reference to Practical Applications

Four Faultless Felons

Advanced Strength of Materials

Topics in Modern Mathematics. An Introduction to Binary Numbers, Sets, Matrices and Statistics

A rigorous introduction to the basic theory of random matrices designed for graduate students with a background in probability theory.

Undergraduate-level introduction to linear algebra and matrix theory. Explores matrices and linear systems, vector spaces, determinants, spectral decomposition, Jordan canonical form, much more. Over 375 problems. Selected answers. 1972 edition.

Graduate-level exposition by noted Russian mathematician offers rigorous, readable coverage of classification of equations, hyperbolic equations, elliptic equations, and parabolic equations. Translated from the Russian by A. Shenitzer.

Algebra

Worked Examples in Mathematics for Scientists and Engineers

An Introduction to Linear Algebra

An Introduction to Sets, Groups, and Matrices

Canadian Mathematical Bulletin

Enhanced by many worked examples, problems, and solutions, this in-depth text is suitable for undergraduates and presents a great deal of information previously only available in specialized and hard-to-find texts. 1981 edition.

A groundbreaking introduction to vectors, matrices, and least squares for engineering applications, offering a wealth of practical examples.

The book is based on lecture notes of a course 'from elementary number theory to an introduction to matrix theory' given at the Technion to gifted high school students. It is problem based, and covers topics in undergraduate mathematics that can be introduced in high school through solving challenging problems. These topics include Number theory, Set Theory, Group Theory, Matrix Theory, and applications to cryptography and search engines.

Vector Spaces and Matrices

Topics in Modern Mathematics

An Introduction to Matrices, Sets and Groups for Science St Ents

A Survey of Matrix Theory and Matrix Inequalities

A First Course in Partial Differential Equations with Complex Variables and Transform Methods

Four members of a London club relate their former careers in crime

Proposes a generalization of Conventional Matrix Product (CMP), called the Semi-Tensor Product (STP). This book offers a comprehensive introduction to the theory of STP and its various applications, including logical function, fuzzy control, Boolean networks, analysis and control of nonlinear systems, amongst others.

This textbook emphasizes the interplay between algebra and geometry to motivate the study of linear algebra. Matrices and linear transformations are presented as two sides of the same coin, with their connection motivating inquiry throughout the book. By focusing on this interface, the author offers a conceptual appreciation of the mathematics that is at the heart of further theory and applications. Those continuing to a second course in linear algebra will appreciate the companion volume Advanced Linear and Matrix Algebra. Starting with an introduction to vectors, matrices, and linear transformations, the book focuses on building a geometric intuition of what these tools represent. Linear systems offer a powerful application of the ideas seen so far, and lead onto the introduction of subspaces, linear independence, bases, and rank. Investigation then focuses on the algebraic properties of matrices that illuminate the geometry of the linear transformations that they represent. Determinants, eigenvalues, and eigenvectors all benefit from this geometric viewpoint. Throughout, “Extra Topic” sections augment the core content with a wide range of ideas and applications, from linear programming, to power iteration and linear recurrence relations. Exercises of all levels accompany each section, including many designed to be tackled using computer software. Introduction to Linear and Matrix Algebra is ideal for an introductory proof-based linear algebra course. The engaging color presentation and frequent marginal notes showcase the author’s visual approach. Students are assumed to have completed one or two university-level mathematics courses, though calculus is not an explicit requirement. Instructors will appreciate the ample opportunities to choose topics that align with the needs of each classroom, and the online homework sets that are available through WeBWorK.

Kronecker Products and Matrix Calculus with Applications

Mathematical Methods for Science Students

Lectures on Classical Differential Geometry

Optics and Optical Instruments

Linear Algebra

Elementary, concrete approach: fundamentals of matrix algebra, linear transformation of the plane, application of properties of eigenvalues and eigenvectors to study of conics. Includes proofs of most theorems. Answers to odd-numbered exercises.

Rigorous, self-contained coverage of determinants, vectors, matrices and linear equations, quadratic forms, more. Elementary, easily readable account with numerous examples and problems at the end of each chapter.

Since 2002, the Introduction to Matrix Algebra book has been downloaded by more than 30,000 users from 50 different countries. This book is an extended primer for undergraduate Matrix Algebra. The book is either to be used as a refresher material for students who have already taken a course in Matrix Algebra or used as a just-in-time tool if the burden of teaching Matrix Algebra has been placed on several courses. In my own department, the Linear Algebra course was taken out of the curriculum a decade ago. It is now taught just in time in courses like Statics, Programming Concepts, Vibrations, and Controls. There are ten chapters in the book 1) INTRODUCTION, 2) VECTORS, 3) BINARY MATRIX OPERATIONS, 4) UNARY MATRIX OPERATIONS, 5) SYSTEM OF EQUATIONS, 6) GAUSSIAN ELIMINATION, 7) LU DECOMPOSITION, 8) GAUSS-SEIDAL METHOD, 9) ADEQUACY OF SOLUTIONS, 10) EIGENVALUES AND EIGENVECTORS.