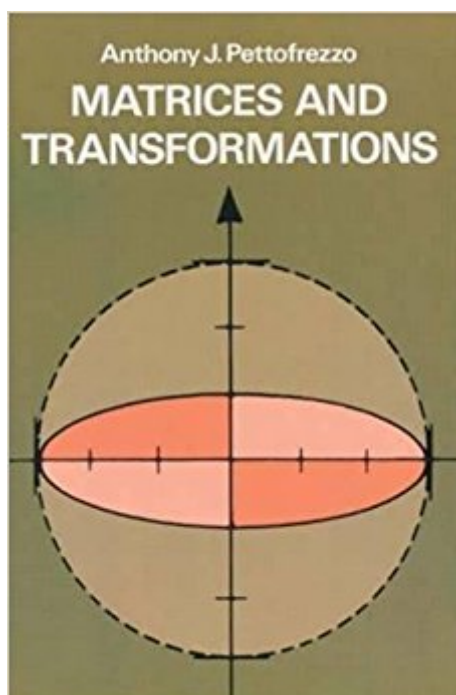The book was found

Matrices And Transformations (Dover Books On Mathematics)

Synopsis

This book presents an elementary and concrete approach to linear algebra that is both useful and essential for the beginning student and teacher of mathematics. Here are the fundamental concepts of matrix algebra, first in an intuitive framework and then in a more formal manner. A Variety of interpretations and applications of the elements and operations considered are included. In particular, the use of matrices in the study of transformations of the plane is stressed. The purpose of this book is to familiarize the reader with the role of matrices in abstract algebraic systems, and to illustrate its effective use as a mathematical tool in geometry.The first two chapters cover the basic concepts of matrix algebra that are important in the study of physics, statistics, economics, engineering, and mathematics. Matrices are considered as elements of an algebra. The concept of a linear transformation of the plane and the use of matrices in discussing such transformations are illustrated in Chapter #. Some aspects of the algebra of transformations and its relation to the algebra of matrices are included here. The last chapter on eigenvalues and eigenvectors contains material usually not found in an introductory treatment of matrix algebra, including an application of the properties of eigenvalues and eigenvectors to the study of the conics. Considerable attention has been paid throughout to the formulation of precise definitions and statements of theorems. The proofs of most of the theorems are included in detail in this book. Matrices and Transformations assumes only that the reader has some understanding of the basic fundamentals of vector algebra. Pettofrezzo gives numerous illustrative examples, practical applications, and intuitive analogies. There are many instructive exercises with answers to the odd-numbered questions at the back. The exercises range from routine computations to proofs of theorems that extend the theory of the subject. Originally written for a series concerned with the mathematical training of teachers, and tested with hundreds of college students, this book can be used as a class or supplementary text for enrichments programs at the high school level, a one-semester college course, individual study, or for in-service programs.

Book Information

Product Dimensions: 5.6 x 0.3 x 8.2 inches

Shipping Weight: 2.6 pounds (View shipping rates and policies)

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Customer Reviews

This fairly short Dover re-print edition is a good self-tutorial for students new to matrices. This book was originally published several years ago. but the mathematical notation is consistent with current texts. The first two chapters are moderately paced, covering such topics as real and complex matrices, Hermitian matrices, the inverse and rank of a matrix, and a brief introduction to systems of linear equations. The third chapter is a bit unique in focusing on application of matrices to transformations of the plane. I have encountered this topic in bits and pieces in various texts and I found this overview both interesting and helpful.The final chapter, titled Eigenvalues and Eigenvectors, was a bit too concise, touching too briefly on more complicated topics like diagonalization of matrices, Hamilton-Cayley Theorem, and quadratic forms. I recommend working through the fourth chapter (this is a short book) rather quickly to get a basic understanding, but then moving to more detailed treatments of eigenvalues and related topics elsewhwere. As a follow-up, I recommend another Dover edition - An Introduction to Matrices, Sets, ad Groups for Science Students. However, this text assumes substantial familiarity with manipulation of determinants.All in all, this book is a good buy and a good starting point for studying matrices.

There are 3+ typos on just the outside of the book itself. The organization of the book and how the information is presented is not helpful in trying to teach the reader about Matrices and Transformations. I would not recommend this book.

Very shot. Not enough to cover a subject like linear algebra.

This is a good elementary book for the introduction to Linear Algebra.

Hello:It's a good book, but it's not different from others I bought to study matrix algebra. Actually, I bought it as a recommendation from another book on matrices.

This is an excellent book concerning Matrices, both during the first time during education learning about Matrices, or by self studying, or just by interest, wanting to learn what Matrices is and how it's used.I bought this book back in 1983 when I during engineering education started to having more to do with Matrices for example Eigenvalues (were Eigenvalue is from Germany, and meaning Own value). I bought it because I didn't like the book we used in the university. But after the education I still bought books concerning Matrices, and Determinants, among other caused by programming a Robots, where we have a 4*4 Matrix for each movable part of its arm and hand. And later during more Economic studying, where we often, like with Robots can end with very big total Matrices. It's an excellent book, one of those which are good to lend to a person quite new in Matrices.The contents in the book:1 Matrices1-1 Definitions of Elementary Properties 11-2 Matrix Multiplication 61-3 Diagonal Matrices 131-4 Special Real Matrices 151-5 Special Complex Matrices 192 Inverses and Systems of Matrices2-1 Determinants 222-2 Inverse of a Matrix 282-3 Systems of Matrices 352-4 Rank of a Matrix 412-5 Systems of Linear Equations 463 Transformation of the Plane3-1 Mappings 513-2 Rotations 533-3 Reflections, Dilations, and Magnifications 583-4 Other Transformations 633-5 Linear Homogeneous Transformations 663-6 Orthogonal Matrices 683-7 Translations 713-8 Rigid Motion Transformations 764 Eigenvalue and Eigenvectors4-1 Characteristic Function 834-2 A Geometric Interpretation of Eigenvectors 874-3 Some Theorems 894-4 Diagonalization of Matrices 924-5 The Hamilton-Cayley Theorem 974-6 Quadratic Forms 1014-7 Classification of the Conics 1034-8 Invariants of Conics 109Bibliography 112Answers to Odd-Numbered Exercises 114Index 129As the number of Answers to Odd-number Exercises we are having a total of 130.On the starting side, for starting on explaining Matrixes we get the following Matrix (here, by me, not a perfect drawing, as it's only for Determinants that we use such a straight line sides): Electric Standard Portable model model model Units of material | 20 17 12 | Units of labor | 6 8 5 |In the book we gets 17 small figures, and to me, especially the geometrical drawings showing the changing in the figures, as on the front page, or rotation, or repositioning, in the co-ordinates, to me, are helpful.And in the book the Matrix and Determinant figures probably are covering more area than the text.

This relatively slim volume provides an excellent summary of matrix algebra and its relationship to geometric transformations. Indeed, as a quick reference to matrix definitions and operations, it's quite good, I think, with a fairly transparent, straightforward and understandable approach. Beyond basic applications to transformations, however, it doesn't provide any real insight into the application

of matrices elsewhere. With that limitation understood, however, it remains highly useful. A fine choice, especially at the price.

Fantastic! As a professional, I picked this book for review of and self-study. The ordering of topics is straightforward and logical. There are just enough exercises in each section to reinforce the material and prove relevant theorems.

Matrices and Linear Transformations: Second Edition (Dover Books on Mathematics) Matrices and Transformations (Dover Books on Mathematics) Transformations Of Coordinates, Vectors, Matrices And Tensors Part I: LAGRANGEâ ™S EQUATIONS, HAMILTONâ ™S EQUATIONS, SPECIAL THEORY OF RELATIVITY AND CALCULUS ... Mathematics From 0 And 1 Book 16) Matrices and Linear Algebra (Dover Books on Mathematics) Applications of the Theory of Matrices (Dover Books on Mathematics) From Antiquities to Heritage: Transformations of Cultural Memory (Time and the World: Interdisciplinary Studies in Cultural Transformations) Euclidean Geometry and Transformations (Dover Books on Mathematics) Matrices: Theory and Applications (Graduate Texts in Mathematics) CONNECTED MATHEMATICS 3 STUDENT EDITION GRADE 8 BUTTERFLIES PINWHEELS AND WALLPAPER: SYMMETRY AND TRANSFORMATIONS COPYRIGHT 2014 READING ORDER: TAMI HOAG: BOOKS LIST OF THE BITTER SEASON, KOVAC/LISKA BOOKS, HENNESSY BOOKS, QUAID HORSES, DOUCET BOOKS, DEER LAKE BOOKS, ELENA ESTES BOOKS, OAK KNOLL BOOKS BY TAMI HOAG Matrix Computations and Semiseparable Matrices: Eigenvalue and Singular Value Methods (Volume 2) Mathematics and the Imagination (Dover Books on Mathematics) Mathematics for Quantum Mechanics: An Introductory Survey of Operators, Eigenvalues, and Linear Vector Spaces (Dover Books on Mathematics) The Nature and Power of Mathematics (Dover Books on Mathematics) Mathematics and the Physical World (Dover Books on Mathematics) Undecidable Theories: Studies in Logic and the Foundation of Mathematics (Dover Books on Mathematics) Matrices and Linear Algebra Matrix Computations and Semiseparable Matrices: Linear Systems (Volume 1) Physical Properties of Crystals: Their Representation by Tensors and Matrices One Hundred Problems in Elementary Mathematics (Dover Books on Mathematics)

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