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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

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Customer Reviews

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.

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