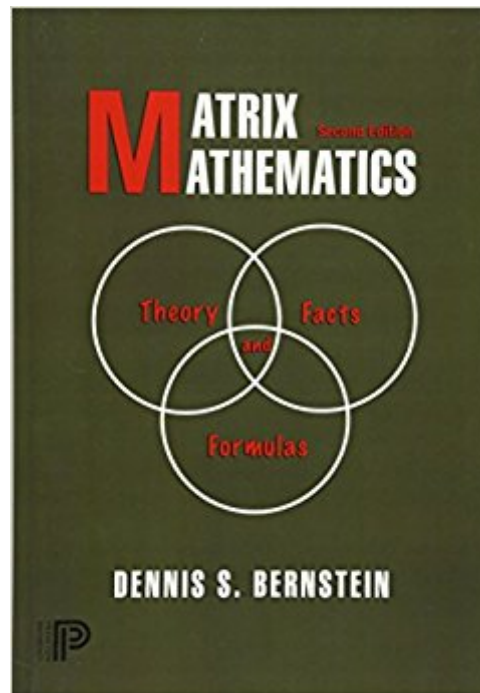The book was found

Matrix Mathematics: Theory, Facts, And Formulas, Second Edition

Synopsis

When first published in 2005, Matrix Mathematics quickly became the essential reference book for users of matrices in all branches of engineering, science, and applied mathematics. In this fully updated and expanded edition, the author brings together the latest results on matrix theory to make this the most complete, current, and easy-to-use book on matrices. Each chapter describes relevant background theory followed by specialized results. Hundreds of identities, inequalities, and matrix facts are stated clearly and rigorously with cross references, citations to the literature, and illuminating remarks. Beginning with preliminaries on sets, functions, and relations,Matrix Mathematics covers all of the major topics in matrix theory, including matrix transformations; polynomial matrices; matrix decompositions; generalized inverses; Kronecker and Schur algebra; positive-semidefinite matrices; vector and matrix norms; the matrix exponential and stability theory; and linear systems and control theory. Also included are a detailed list of symbols, a summary of notation and conventions, an extensive bibliography and author index with page references, and an exhaustive subject index. This significantly expanded edition of Matrix Mathematics features a wealth of new material on graphs, scalar identities and inequalities, alternative partial orderings, matrix pencils, finite groups, zeros of multivariable transfer functions, roots of polynomials, convex functions, and matrix norms. Covers hundreds of important and useful results on matrix theory, many never before available in any book Provides a list of symbols and a summary of conventions for easy use Includes an extensive collection of scalar identities and inequalities Features a detailed bibliography and author index with page references Includes an exhaustive subject index with cross-referencing

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Mathematics

Customer Reviews

"When a matrix question is thrown my way, I will now refer my correspondents . . . to Bernstein's handbook."--Philip J. Davis, SIAM News"Matrix Mathematics contains an impressive collection of definitions, relations, properties, equations, inequalities, and facts centered around matrices and their use in systems and control. The amount of material that is covered is quite impressive and well structured. . . . I highly recommend the book as a source for retrieving matrix results that one would otherwise have to search for in the extensive literature on matrix theory."--Paul Van Dooren, IEEE Control Systems Magazine"The author was very successful in collecting the enormous amount of results in matrix theory in a single source. . . . A beautiful work and an admirable performance!"--Monatshefte fÃƒÂ r Mathematik"It is a remarkable source of matrix results. I will put it on the shelf near to my desk so that I have quick access to it. The book is an impressive accomplishment by the author. . . . I can enthusiastically recommend it to anyone who uses matrices. The author has to be applauded for the accomplishment of putting together this impressive volume."--Helmut Lutkepohl, Image"The book is a well-organized treasure trove of information for anyone interested in matrices and their applications. Look through the Table of Contents and see if there isn't some section that will tempt you and/or illuminate your pathway through the extensive literature on matrix theory. Researchers should have access to this authoritative and comprehensive volume. Academic and industrial libraries should have it in their reference collections. Their patrons will be grateful."--Henry Ricardo, MAA Reviews"Anybody, regardless of level of expertise, could learn new things just by browsing. Open to a random page and start reading. The reader who seeks specific information to solve a problem may also find success here."--David S. Watkins, SIAM Review

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I decided to buy a copy after finding myself repeatedly borrowing a copy of the (hardback) first edition from a colleague. In terms of content, the book remains excellent, but the quality of the binding is not good. After having it a week, I am afraid it will burst in half every time I open it. Very poor for a resource I was planning to keep on my shelf for years.

The book is comprehensive and certainly worthwhile on one's bookshelf, but only in hard copy. I

bought the kindle edition in which the equations are almost illegible - sufficiently so that I will be asking for my money back as it is practically useless as a reference.

This is not intended to be a text book. It is, however, a brilliant reference, and really a must-own for anyone doing research in a field that heavily involves linear algebra. The only thing I've found not exhaustively covered is the calculus of functions of matrices. There are some results, but some useful ones are missing, or perhaps stated in forms that are difficult to recognize.The notation can be a little cryptic and contrary to convention in places. Still, there's a thorough list of notation at the beginning, so it's not really an issue.My biggest complaint is that it's heavy as hell. It should probably be broken into two books if he writes a third edition.

Extremely important book !

This book is a very complete encyclopedia of matrix properties, or as the subtitle puts it "Theories, facts and formulas". As every good encyclopedic work, this book is not meant to be read from A to Z, but rather serves as a reference work that will never quit your desk.

This is a good book by a reputable author. However, the Kindle edition is poorly typeset. I have the printed copy and much prefer the print over the Kindle edition.

the results in each chapter require reading from the begining of the chapter. so it is not a handbook. but quite a bit of material was collected in it.examples of 2X2 matrices should be standard here. sometimes examples of 3X3 will be necessary. WITH NUMBERSExamples will be a lot more helpful than the proofsMatrices are geometry. Graphs are necessary here.Produced beautifully with white bright pages. But to keep these many pages together, the binding should be stitched

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