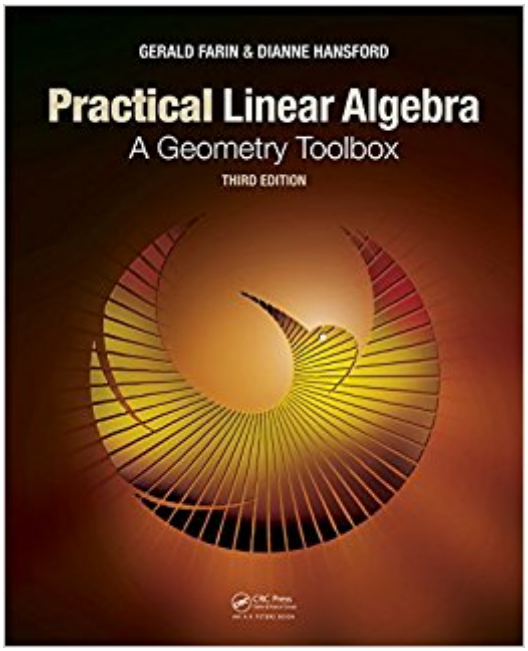
Practical Linear Algebra: A Geometry Toolbox, Third Edition



Synopsis

Through many examples and real-world applications, Practical Linear Algebra: A Geometry Toolbox, Third Edition teaches undergraduate-level linear algebra in a comprehensive, geometric, and algorithmic way. Designed for a one-semester linear algebra course at the undergraduate level, the book gives instructors the option of tailoring the course for the primary interests: math, engineering, science, computer graphics, and geometric modeling.New to the Third EditionMore exercises and applications Coverage of singular value decomposition and its application to the pseudoinverse, principal components analysis, and image compressionMore attention to eigen-analysis, including eigenfunctions and the Google matrixGreater emphasis on orthogonal projections and matrix decompositions, which are tied to repeated themes such as the concept of least squares To help students better visualize and understand the material, the authors introduce the fundamental concepts of linear algebra first in a two-dimensional setting and then revisit these concepts and others in a three-dimensional setting. They also discuss higher dimensions in various real-life applications. Triangles, polygons, conics, and curves are introduced as central applications of linear algebra.Instead of using the standard theorem-proof approach, the text presents many examples and instructional illustrations to help students develop a robust, intuitive understanding of the underlying concepts. The authorsâ ™ website also offers the illustrations for download and includes MathematicaÂ® code and other ancillary materials.

Book Information

File Size: 19649 KB

Print Length: 514 pages

Publisher: A K Peters/CRC Press; 3 edition (August 19, 2013)

Publication Date: August 19, 2013

Sold by:Â Digital Services LLC

Language: English

ASIN: B00EYRGIBA

Text-to-Speech: Not enabled

X-Ray: Not Enabled

Word Wise: Not Enabled

Lending: Not Enabled

Enhanced Typesetting: Not Enabled

Best Sellers Rank: #532,347 Paid in Kindle Store (See Top 100 Paid in Kindle Store) #37

inÂ Kindle Store > Kindle eBooks > Nonfiction > Science > Mathematics > Pure Mathematics > Algebra > Linear #286 inÂ Books > Science & Math > Mathematics > Pure Mathematics > Algebra > Linear #307 inÂ Kindle Store > Kindle eBooks > Computers & Technology > Web Graphics

Customer Reviews

I have to say this book was perfect. It’s written with the assumption that you know algebra and trigonometry (you’ll also need a little bit of calculus if you want to completely absorb chapter 18) and goes from there to describe linear algebra step-by-step. I was struggling with concepts like Eigenvectors, Gaussian elimination, matrix inversion, etc. but after reading through this book and working all the exercises (most of which have answers in the back for self-study), I’m actually finding myself "thinking" in linear algebra.The first third or so of the book covers 2D linear algebra, and has a bit of a bias towards graphics problems. It covers things like line intersections and "closest point to a line" as well as rotations, shears, translations, etc. The next third or so extends these concepts out to 3D (still with sort of a graphics bias) and introduces 3D-only concepts such as the cross product. Finally, the last third introduces the abstract N-dimensional perspective that doesn’t have a graphical interpretation. This is where it discusses things like least-squares estimation and orthonormalization - the really useful (but abstract) bits of linear algebra.With the first two thirds of the book to back it up, I found the really abstract concepts (which most authors seem to want to start with) relatively easy to absorb - which is really a pretty amazing accomplishment.I also can’t recommend the chapter exercises highly enough. Most of them had answers in the back, so you can check your work (including these ought to be a no-brainer for writers of math books, but evidently there are quite a few math book writers with, well, no brains...

Algebra: Pre-Algebra and Algebra 1 The Mindfulness Toolbox: 50 Practical Tips, Tools & Handouts for Anxiety, Depression, Stress & Pain Studies in linear and non-linear programming, (Stanford mathematical studies in the social sciences) Applied Abstract Algebra with MapleTM and MATLABÂ®, Third Edition: A Maple and MATLAB Approach, Third Edition (Textbooks in Mathematics) Glencoe Geometry, Student Edition (MERRILL GEOMETRY) Geometry Student Edition CCSS (MERRILL GEOMETRY) Geometry, Student Edition (MERRILL GEOMETRY) Differential Equations and Linear Algebra (3rd Edition) Differential Equations and Linear Algebra (4th Edition) Differential Equations and Linear Algebra (2nd Edition) Linear Algebra and Its Applications (5th Edition)