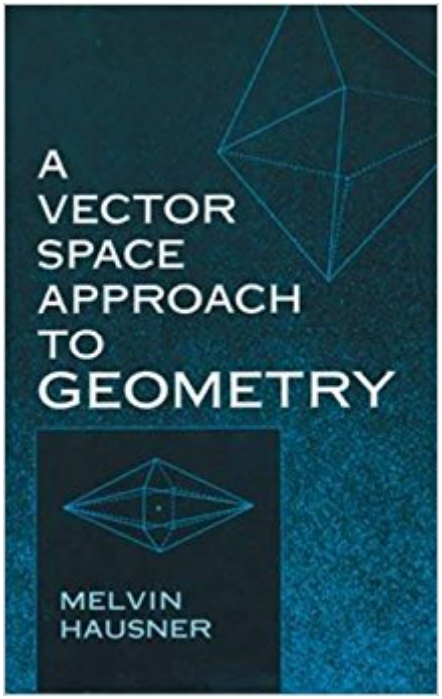
A Vector Space Approach To Geometry (Dover Books On Mathematics)



Synopsis

The effects of geometry and linear algebra on each other receive close attention in this examination of geometryÃ¢â ¬â„¢s correlation with other branches of math and science. In-depth discussions include a review of systematic geometric motivations in vector space theory and matrix theory; the use of the center of mass in geometry, with an introduction to barycentric coordinates; axiomatic development of determinants in a chapter dealing with area and volume; and a careful consideration of the particle problem. 1965 edition.

Book Information

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Customer Reviews

Melvin Hausner did an excellent job with this book. If you have a strong background in highschool / early college mathematics, and are looking to understand how the basic topics of mathematics intertwine with linear algebra, then this book is what you should get.

The basics of the very deep connection between geometry and vector spaces. If you do undergrad math you will see everything in this book during first and second year. But what this book does is fit those bits together. He does this very nicely at an introductory level. If you are not in math, but need to learn some geometryfor a physics course, this will be a useful book.It is a formal math book, with axioms, but it is strong on motivation and has some quite amusing examples.Keywords: tangent spaces, determinants, barycentric, linear transformations.

I have been reading many books on vector analysis, geometry, and linear algebra this year. Many of them have been good, but this book stands alone for deriving the basics of determinants, vector products, geometry, etc. in a clear and intuitive manner along with great examples. A wonderful, wonderful book.

TOO ABSTRACT

I didn’t find this book to read like a novel. I got it hoping to learn about projective transformations for computer graphics, but was disappointed because of the method of presentation was too long to get through. I believe the text would appeal to those whose interest was strongly in geometry and had a college level background in math. I gave it three stars for the seemingly interminable proofs of geometric theorems that I had little use for.

This is essentially a high school geometry book; but with a difference - its fully linear algebra based approach. If you are a beginner in computer graphics, and want to review elements of geometry and linear algebra, you will benefit from studying through this book.The almost four hundred pages book is remarkably readable and is very consistent at that. There are both worked out examples and exercise problems, for each section - which are very useful for self-study or revision.If you have never had an introduction to linear algebra before, you may have to supplement this with a linear algebra book. But if you have not had a good course in elementary geometry, and your motivation is getting started with elementary Computer Graphics/CAD and the likes, this is a good book for that.Interspersed with the subject matter discussed at a elementary level, in a useful, stimulating style are small, interesting discussions on such useful and relatively advanced topics as function spaces, fixed point theorem in affine transformation, simplices, symmetries etc. I rarely have seen any of these topics mentioned in a book aimed at this level.Highly recommended for freshman undergraduates and those without any mathematics experience who want to start in Graphics, CAD, CAGD and the likes. Recommended also for experienced practitioners in Graphics: it is good to review the fundamentals once in a while, and a well written book that is a quick read helps at that!

This is one beautiful book. The whole book is one long thread about geometry and vectors. To make this review short, I’ll say you absolutely *must* have this book if you want to set yourself on the proper track to Linear Algebra. In fact, this book could almost be considered an Analytic

Geometry book 'done right.' But be careful: I said almost. By that I mean that some staple AG stuff is missing. For instance, no long discussions about a plane intersecting a sphere, no quadric surfaces. So it does lack the sort of drill exercises you need to succeed in an AG class - but such stuff is not its purported goal, anyway - but then again, your 'vector 6th sense' will increase tremendously with this book. I wish I had discovered this book while I was having my Analytic Geometry. Now I'm taking a Linear Algebra class and I'm glad I found this book.It also is full of other interesting insights and relations to other topics, including some applications to Calculus (motion) and some topology.

Having suffered through enough dry, pointless courses in vector algebra and analysis, this book was a genuine pleasure. Requiring no mathematical background whatsoever, Mr. Hausner makes the properties of vectors and matrices (cross-products, determinants, eigenvalues) intuitively obvious. With detailed descriptions and graphics, the science of vectors is made very clear. Further, Mr. Hausner's use of levity and practical examples makes for a very enjoyable read.