

1: Algebra: Abstract and Concrete, Online Book

Dr. Schneider walks the reader through the different concepts that make up Linear Algebra with incredible skill. Each chapter is an easy read with useful examples and problems at the end of each chapter.

Indeed, the result of addition of two ordered pairs as in the second example above does not depend on the order of the summands: All other axioms can be checked in a similar manner in both examples. Thus, by disregarding the concrete nature of the particular type of vectors, the definition incorporates these two and many more examples in one notion of vector space. When the scalar field F is the real numbers \mathbb{R} , the vector space is called a real vector space. When the scalar field is the complex numbers \mathbb{C} , the vector space is called a complex vector space. These two cases are the ones used most often in engineering. The general definition of a vector space allows scalars to be elements of any fixed field F . The notion is then known as an F -vector spaces or a vector space over F . A field is, essentially, a set of numbers possessing addition, subtraction, multiplication and division operations. In contrast to the intuition stemming from vectors in the plane and higher-dimensional cases, there is, in general vector spaces, no notion of nearness, angles or distances. To deal with such matters, particular types of vector spaces are introduced; see below. Alternative formulations and elementary consequences[edit] Vector addition and scalar multiplication are operations, satisfying the closure property: Some older sources mention these properties as separate axioms. The remaining axioms give this group an F -module structure. In other words, there is a ring homomorphism f from the field F into the endomorphism ring of the group of vectors. Then scalar multiplication av is defined as $f(a)v$. Some of them derive from elementary group theory, applied to the additive group of vectors: Further properties follow by employing also the distributive law for the scalar multiplication, for example $av = 0$ if and only if $a = 0$ or $v = 0$. History[edit] Vector spaces stem from affine geometry via the introduction of coordinates in the plane or three-dimensional space. Around 1637, Descartes and Fermat founded analytic geometry by equating solutions to an equation of two variables with points on a plane curve. Mourey suggested the existence of an algebra surpassing not only ordinary algebra but also two-dimensional algebra created by him searching a geometrical interpretation of complex numbers. In 1845, Cayley introduced matrix notation, which allows for a harmonization and simplification of linear maps. He envisaged sets of abstract objects endowed with operations.

2: Linear Algebra: An Introduction - Richard Bronson, Gabriel B. Costa - Google Books

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Linear algebra Books June 11, Linear Algebra is not what it seems at first thought. Behind all the matrices, polynomials, vectors and spaces, there is a fascinating subject which tools can help you to solve many practical problems. Linear Algebra is a topic connected to different fields inside and outside mathematics like functional analysis, differential equations, engineering, graph theory, statistics, linear programming, and computer graphics. Its study is essential in most degree courses, especially those related to engineering or science. To show a simple example, it is impossible to develop graphic software applications like photo editors or graphical games without a good understanding of this topic. There are hundreds of books with the aim of teaching Linear Algebra, your choice will depend, basically, on the kind of course you are taking, and on the approach, prose and rigor of the text you prefer to study. Here I propose a brief list of books, based on my personal experience, from famous books I have read or consulted. The order used to present the books is not relevant. I hope this list can help you to decide which book is the best for you. It is written in a clear way with lots of interesting examples and very good exercises. In every chapter the author gives a good concrete foundation before introducing the more abstract concepts. In order to enable students to visualize and understand complex concepts, as well as the meaning of the calculations that they will encounter, the author introduces, from the first moment, the concepts of vectors and vector geometry, emphasizing on geometric intuition. He also prepares students to make the transition from the computational aspects of the course to the theoretical; by giving an abundant selection of applications from a broad range of disciplines that clearly demonstrates the relevance of linear algebra. It is a full presentation that will give you an intuitive grasp of linear algebra from both, the geometric and algebraic points of view, and will capture your attention until the end of the book. A variety of interesting examples and exercises in each chapter will help you to understand and manipulate the objects of linear algebra. The novel approach taken in this book banishes determinants to the end of the book and focuses on the central goal of linear algebra: Lay A well organized, well explained, and well written book. Concepts are explained clearly and concisely, highlighting the key information, and presenting useful examples. On each section, the author presents a brief, but useful discussion on real world applications. The text also includes several exercises, which seem perfectly targeted for each section. The author introduces Linear Algebra concepts early in a familiar, concrete R^n setting, develops them gradually, and returns to them again and again throughout the text so that when discuss in the abstract, these concepts are more accessible. Meyer This is a practical, problem-oriented textbook, especially valuable for a computational perspective. The author manages to explain complex topics in a manner, understandable to an undergrad, without simplifying or skipping parts. He is patient and thorough and explains even the simpler issues step by step. He takes his time to make sure that everything is crystal clear. Some of the more contemporary topics of applied linear algebra are included in the text, which are not normally found in undergraduate textbooks. Theoretical developments are always accompanied with detailed examples, and each section ends with a large number of carefully chosen exercises from which the students can gain further insight. Moreover, the inclusion of historical information provides personal insights into the mathematicians who developed this subject. The textbook contains numerous examples and exercises, historical notes, and comments on numerical performance and the possible pitfalls of algorithms. The organization of the book is also excellent and it manages to maintain a perfect coherence between sections while each chapter can be read alone as well. Shores This book is designed for an introductory course in matrix and linear algebra; offering a fresh approach to those topics by providing a balanced blend of all three of the basic components of linear algebra: Each section ends with a set of exercises where students must prove their acquired knowledge. The book places special emphasis on linear algebra as an experimental science, with numerous examples, computer exercises, and projects, focusing on numerical computation and applied mathematics, which means that matrix analysis

plays a central role. Throughout the book, significant motivating examples are woven into the text, which help students to appreciate the utility and beauty of these subjects as well as the mechanics. By including applied mathematics and mathematical modeling, this book will also teach students how concepts of matrix and linear algebra make concrete problems workable. Grossman This book is intended for the first course in linear algebra, the level is not rigorous, but its pedagogical approach makes it perfect to introduce this subject. This classical book balances mathematical techniques and mathematical proofs. It presents theory in small steps and provides more examples and exercises involving computations than abstract texts. To demonstrate how linear algebra can be applied in different fields of science, the author presents several applications, and many examples and exercises make reference to different disciplines. Introduction to Linear Algebra By Gilbert Strang Gilbert Strang is a Professor of Mathematics at Massachusetts Institute of Technology, his lectures can be seen in YouTube, where you soon will notice his particular approach to teach Linear Algebra, which is also pervaded in this book. Thousands of teachers in colleges and universities and now high schools are using this book, which truly explains this crucial subject. This textbook is intended for first courses in linear algebra. Instead of teaching students by repetitive drill, the author encourages students to real mathematical thinking; an approach that has been successful over many years at MIT. The book includes challenge problems to complement the review problems that have been highly praised in previous editions. The basic course is followed by seven applications: Linear Algebra and its applications By Gilbert Strang This book, also written by renowned professor Gilbert Strang, is an excellent and accessible intro to the subject, where the author begins with a brief and enthusiastic explanation of the nature of linear algebra. The proposed problems, give you the opportunity to practice the theoretical as well as computational algebraic skills. The author tries, in all moment, to demonstrate that linear algebra is a fascinating subject by showing both, its beauty and value. Throughout the book, the theory is motivated and reinforced by genuine applications, allowing pure mathematicians to teach applied mathematics. He explains concepts, rather than deduces. The book can be summarized as a very lovely, graceful, poetic examination of linear algebra from a very applied background. This book contains Solved Problems that can not only help students to understand abstract concepts of linear algebra, but they are also, an excellent complement for any course of Linear Algebra. Solved problems cover from simple problems to proofs of theorems, which help you to organize the thought processes and give you a better concept and intuition of the material. The book is very clear and complete, and the range of material covered is more than you will find in the lower undergraduate class. If you take the time to work through this book, you will be a master of the topic with a much wider foundation and with many different approaches to same problem. It will also help you catch up on the little "details" which you might have absorbed for the duration that you thought you would be tested on it, but after such time the information vanished into the void of forgotten math. Theory and Problems of Linear Algebra By Seymour Lipschutz This famous book is designed for use as a textbook for a formal course in linear algebra or as a supplement to all current standard texts. Each chapter begins with clear statements of pertinent definitions, principles and theorems together with illustrative and other descriptive material. The solved problems serve to illustrate and amplify the theory, bring into sharp focus those fine points without which the student continually feels himself on unsafe ground, and provide the repetition of basic principles so vital to effective learning. Numerous proofs of theorems are included among the solved problems. Supplementary problems serve as a complete review of the material of each chapter. Its last editions include new problems relevant to computer science and examples that demonstrate the applicability to the fields in which linear algebra is now essential: From a pedagogical point of view, the book is excellent, and it will be found helpful to all readers regardless of their fields of specialization.

3: Linear Algebra: A Modern Introduction - David Poole - Google Books

Linear Algebra has 2 ratings and 1 review. Foxtower said: Maybe this book deserves a higher rating, but when I took linear algebra I had reached the poin.

4: Download [PDF] A Modern Introduction To Linear Algebra Free Online | New Books in Politics

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5: Linear Algebra: A Concrete Introduction by Dennis M. Schneider

A (Terse) Introduction to Linear Algebra is a concise presentation of the core material of the subject--those elements of linear algebra that every mathematician, and everyone who uses mathematics, should know.

6: Vector space - Wikipedia

This substantial book by Leonid (or Leon) Mirsky covers a very broad range of basic linear algebra in a slightly old-fashioned concrete style, but that is far preferable to the overly abstract style of many more modern books.

7: Linear Algebra - home

extent, linear algebra from the point of view of systems of equations. Abstract algebra, that is, the study of groups, rings, and fields, usually followed such a course.

8: 10 recommended books on Linear Algebra - Nibcode Solutions

ALGEBRA ABSTRACT AND CONCRETE EDITION FREDERICK M. GOODMAN SemiSimple Press Iowa City, IA Last revised on May 1,

9: - Linear Algebra: A Concrete Introduction by Dennis M Schneider

Linear Algebra is a systematic theory regarding the solutions of systems of linear equations. Example Let us take the following system of two linear equations in the two un-

City of heavenly fire 2shared Public relations and American democracy Supplement to Browns organic chemistry I Love You More Than . (Light and Sound Book) Going the Extra Mile Children of the Kalevala Postsecondary opportunity V. 6. PLRE 138-150 Imam al haddad book of assistance Air Force Doctrinal Document 1-1 Editor ipad Body and sexuality School preparation among the disadvantaged The disciplines of emergency management : mitigation Agreement of evolution Christianity November current affairs ibps guide Treasures and pleasures of Italy Are you a communist? Guide to mixing nick thomas The Other Side of the Pulpit A glossary of Yorkshire words and phrases, collected in Whitby and the . Selling diversity More Lefton China A Sailors Songbag Genetic and biochemical diagnosis Saving San Francisco The Macmillan medical cyclopedia. 4. Number of Weapons 32 The ultimate guide to pregnancy for lesbians The soul of anna klane Discriminant analysis Nate the Great and the hungry book club Why its difficult to break free of the low self-esteem habit Food and mealtimes in dementia care Principal doctrines of Christianity defended against the errors of Socinianism Appendix E: HIV, AIDS, and other sexually transmitted diseases Proceedings, 30th Applied Imagery Pattern Recognition Workshop Urban Ghetto P (Anselm) Resources for Sunday Homilies-Year B Post war british poetry