

axler linear algebra done right

Axler Linear Algebra Done Right: A Fresh Perspective on Linear Algebra

axler linear algebra done right has become a phrase synonymous with a modern, elegant approach to understanding one of the most foundational areas of mathematics. If you've ever struggled with traditional linear algebra textbooks that emphasize computational techniques before conceptual clarity, then Axler's book offers a refreshing alternative. Written by Sheldon Axler, this book rethinks the way linear algebra is taught and learned, focusing more on vector spaces and linear maps rather than matrix computations upfront. Let's dive into why this approach is gaining traction and how it can transform your understanding of linear algebra.

What Makes Axler Linear Algebra Done Right Stand Out?

When you pick up a conventional linear algebra textbook, you're often greeted with a barrage of matrix operations, determinants, and row reductions. While these are important tools, they sometimes overshadow the core concepts that give linear algebra its power. Axler's "Linear Algebra Done Right" shifts the narrative by prioritizing abstract vector spaces and linear transformations from the get-go. This method encourages a deeper conceptual grasp before jumping into calculations.

Emphasis on Theory Over Computation

One of the key features of Axler's text is the decision to delay determinants until later chapters. This might seem counterintuitive, since determinants are often introduced early as a way to solve systems and compute inverses. However, Axler argues—and convincingly so—that determinants are not central to understanding linear algebra's essence. Instead, he builds intuition through eigenvalues, eigenvectors, and inner product spaces without relying heavily on determinants. This approach helps students appreciate the beauty and structure of linear algebra beyond mere computations.

Clear and Accessible Writing Style

Axler's writing is known for being clear, concise, and approachable without sacrificing rigor. The explanations are straightforward, often accompanied by insightful remarks and illustrative examples. This makes the book suitable for a wide range of readers—from undergraduates encountering linear algebra for the first time to advanced students seeking a solid theoretical

foundation.

Core Concepts Explored in Axler Linear Algebra Done Right

Understanding why Axler's approach is effective requires looking at some of the central topics emphasized throughout the book.

Vector Spaces and Linear Maps

At the heart of Axler's approach lies the concept of vector spaces and linear maps (linear transformations). Instead of focusing immediately on matrices, the book explores these abstract structures to highlight how linear algebra operates in a general setting. This abstraction allows readers to see patterns and relationships that are obscured when focusing solely on matrices.

Eigenvalues and Eigenvectors Without Determinants

A highlight of the text is the treatment of eigenvalues and eigenvectors without initially invoking determinants. This is particularly valuable for students who find determinants abstract or unintuitive. Axler develops the theory using minimal machinery, emphasizing the geometric and algebraic significance of eigenvectors and eigenvalues in understanding linear operators.

Inner Product Spaces and Orthogonality

The text also dedicates significant attention to inner product spaces, which generalize the familiar dot product concept. This section introduces notions of length, angle, and orthogonality in a broad context, paving the way for applications in functional analysis and quantum mechanics. The treatment of orthonormal bases and the Gram-Schmidt process is both elegant and comprehensible.

Why Choose Axler Linear Algebra Done Right for Your Studies?

If you're contemplating which linear algebra textbook to use or want to deepen your understanding, Axler's book offers several compelling advantages.

Builds Strong Theoretical Foundations

By focusing on vector spaces and linear transformations early on, learners develop a robust theoretical framework that supports advanced topics. This foundation is invaluable for students planning to pursue pure mathematics, physics, or engineering fields that rely heavily on linear algebra.

Promotes Mathematical Maturity

The style of the book encourages readers to think abstractly and logically, honing problem-solving skills that go beyond rote memorization. Exercises often challenge students to prove theorems and explore concepts independently, fostering a deeper engagement with the material.

Widely Recommended by Educators

Many university instructors and mathematicians endorse Axler's text for its clarity and innovative approach. It's often used in honors courses or as a supplementary resource alongside more computational textbooks, striking a balance between theory and application.

Tips for Getting the Most Out of Axler Linear Algebra Done Right

To truly benefit from Axler's approach, it helps to engage actively with the material. Here are some tips to keep in mind:

- **Don't Rush the Abstract Concepts:** Take time to understand vector spaces and linear maps conceptually before moving on to computations.
- **Work Through Proofs:** Many of the exercises involve proving key results. Attempting these proofs strengthens your understanding.
- **Use Supplementary Resources:** Pair the book with lecture notes, video tutorials, or forums to clarify challenging ideas.
- **Connect to Applications:** Try to relate abstract concepts to practical problems in physics, computer science, or engineering to see their relevance.

How Axler's Approach Influences Modern Linear Algebra Teaching

The impact of "Linear Algebra Done Right" extends beyond individual learners. It has influenced how linear algebra is taught in many institutions around the world. By prioritizing conceptual understanding, instructors encourage students to appreciate the underlying structures that govern linear transformations and vector spaces, rather than just manipulating numbers and matrices.

Shifting Away from Determinants Early On

One of the most notable pedagogical shifts inspired by Axler's book is the delay in introducing determinants. This shift helps students focus on more intuitive and fundamental aspects of linear algebra, like the behavior of linear operators and the nature of eigenvalues.

Encouraging Abstract Thinking

Axler's text models a style of teaching that values abstraction and generality, preparing students for higher-level mathematics and theoretical physics. This prepares learners to tackle more complex subjects such as functional analysis, differential equations, and quantum theory with confidence.

Exploring the Exercises: A Key Part of Mastering Axler Linear Algebra Done Right

Exercises in the book are not merely routine drills but carefully designed challenges that encourage exploration and understanding. Many problems ask students to prove theorems, analyze examples, and reflect on the material's implications. Tackling these exercises is crucial for internalizing the concepts and gaining mathematical maturity.

Types of Exercises to Expect

- **Proof-Based Problems:** These require formal logical reasoning to establish new results based on the theory presented.
- **Conceptual Questions:** Designed to test understanding of definitions and

the relationships between concepts.

- **Computational Exercises:** While less frequent, these help reinforce how abstract ideas can be applied in concrete cases.
- **Exploratory Tasks:** Open-ended problems that encourage creative thinking and deeper investigation.

Final Thoughts on Integrating Axler Linear Algebra Done Right Into Your Learning Journey

If your goal is to gain a profound and lasting understanding of linear algebra, Sheldon Axler's "Linear Algebra Done Right" is an exceptional resource. It challenges conventional teaching methods and invites learners to engage with the subject at a conceptual level that many traditional texts overlook. Whether you're a student, educator, or self-learner, exploring this book can enrich your mathematical toolkit and transform your perspective on linear algebra's elegance and utility.

Frequently Asked Questions

What is the main focus of Axler's 'Linear Algebra Done Right'?

Axler's 'Linear Algebra Done Right' primarily focuses on understanding linear algebra through the theory of linear operators on vector spaces, emphasizing abstract vector spaces rather than matrix computations.

How does 'Linear Algebra Done Right' differ from traditional linear algebra textbooks?

Unlike traditional textbooks that start with matrix operations, Axler's book avoids determinants initially and develops linear algebra concepts using a more theoretical approach centered on linear maps and vector spaces.

Is 'Linear Algebra Done Right' suitable for self-study?

Yes, 'Linear Algebra Done Right' is suitable for motivated self-learners who have some mathematical maturity, as it provides clear explanations and exercises that develop conceptual understanding.

What prerequisites are recommended before reading Axler's 'Linear Algebra Done Right'?

A basic understanding of proof techniques, set theory, and familiarity with elementary algebra is recommended before studying Axler's 'Linear Algebra Done Right' to fully grasp its abstract approach.

Does Axler's book cover determinants and eigenvalues?

Yes, the book covers eigenvalues and eigenvectors in depth but delays the introduction of determinants until later chapters, emphasizing their conceptual role rather than computational methods.

Why do many students and instructors prefer 'Linear Algebra Done Right'?

Many prefer it because it offers a clear, rigorous, and conceptually driven treatment of linear algebra that builds intuition about linear operators without relying heavily on matrix computations and determinants upfront.

Are there supplementary resources available for 'Linear Algebra Done Right'?

Yes, there are various online lecture notes, solution manuals, and video lectures available that complement Axler's book, which can help deepen understanding and provide additional examples and exercises.

Additional Resources

Axler Linear Algebra Done Right: A Comprehensive Review and Analysis

axler linear algebra done right stands out in the pantheon of mathematical textbooks for its unique approach to one of the most foundational subjects in higher mathematics. Written by Sheldon Axler, this book has garnered attention not only for its content but also for its pedagogical style that challenges traditional methods of teaching linear algebra. This review delves deeply into what makes Axler's work distinct, examining its structure, methodology, and overall contribution to the field of linear algebra education.

Understanding the Core Philosophy of Axler

Linear Algebra Done Right

At its heart, Axler Linear Algebra Done Right reimagines how linear algebra can be taught by focusing on vector spaces and linear maps before introducing determinants. This approach contrasts sharply with many classical textbooks, which often begin with matrix operations and determinants as fundamental concepts. Axler argues that understanding linear transformations abstractly leads to a more conceptual grasp of the subject, enabling students to appreciate the elegance and power behind the theory.

This deliberate structuring aligns well with contemporary pedagogical trends emphasizing abstraction and theoretical clarity over rote computational techniques. It also caters to students who plan to pursue advanced mathematics or theoretical computer science, where an in-depth understanding of linear algebraic structures is crucial.

Key Features and Distinguishing Elements

Axler Linear Algebra Done Right is characterized by several defining features that underline its innovative approach:

- **Determinant-Free Approach:** Perhaps the most famous aspect is Axler's deliberate delay of determinants until later chapters. This shift challenges the conventional narrative and encourages students to focus on linear maps, eigenvalues, and eigenvectors without relying on determinant properties.
- **Emphasis on Abstract Vector Spaces:** The book introduces vector spaces in a general setting early on, moving beyond the familiar Euclidean space, which broadens the learner's perspective.
- **Clear and Concise Writing:** Axler's prose is noted for being accessible yet rigorous, striking a balance that appeals to both undergraduate students and instructors.
- **Logical Progression of Topics:** Each chapter builds upon the previous one with carefully crafted proofs and examples, fostering a deep understanding rather than superficial familiarity.

Comparative Context: Axler Versus Traditional Linear Algebra Texts

When compared to standard textbooks like Gilbert Strang's "Introduction to

Linear Algebra” or David C. Lay’s “Linear Algebra and Its Applications,” Axler’s work stands apart in both style and substance. Traditional texts often prioritize computational skills and applications early, focusing on matrix manipulation, systems of linear equations, and determinants. Axler’s book, by contrast, favors a more theoretical and abstraction-driven approach, which can be both an advantage and a drawback depending on the learner’s goals.

- **Pros of Axler’s Approach:**

- Builds strong conceptual foundations.
- Prepares students for advanced mathematical studies.
- Encourages critical thinking about the nature of linear transformations.

- **Cons:**

- May be challenging for beginners seeking computational skills.
- Lacks extensive applied examples that some students find motivating.
- Determinant delay can cause confusion for those accustomed to traditional sequences.

Pedagogical Impact and Reception in Academic Circles

Over the years, Axler Linear Algebra Done Right has found a loyal following among educators who appreciate its refreshing take on the subject. Many university courses have incorporated it as the primary text, particularly in honors or advanced undergraduate linear algebra classes. Its influence can be seen in how it has prompted educators to reconsider the sequence and emphasis of topics in their syllabi.

However, its reception is not without critique. Some instructors argue that the book’s abstract nature may alienate students who thrive on tangible applications and computational practice. In response, supplementary materials or companion problem sets are often recommended to bridge this gap.

Integration with Modern Curriculum and Learning Tools

The book's abstract approach complements modern computational tools like MATLAB, Mathematica, and Python libraries, which handle matrix computations and determinants effortlessly. This allows students to focus more on the theory and proofs in the classroom, while practical computations can be offloaded to software. In this way, Axler's method aligns well with contemporary educational paradigms that emphasize conceptual understanding supported by computational verification.

Additionally, various online resources, lecture notes, and solution manuals have emerged to support learners using Axler Linear Algebra Done Right, enhancing its accessibility and pedagogical utility.

Content Structure and Depth: What to Expect Chapter by Chapter

Axler's textbook is carefully segmented into chapters that gradually introduce essential concepts without overwhelming the reader. The progression typically follows:

1. **Vector Spaces and Subspaces:** Establishing the foundational objects of study beyond $\mathbb{R}^n$ or $\mathbb{C}^n$.
2. **Linear Maps:** Developing the notion of functions between vector spaces that preserve structure.
3. **Eigenvalues and Eigenvectors:** Introducing spectral theory early, a central theme in many applications.
4. **Inner Product Spaces:** Discussing orthogonality and projections, crucial for optimization and geometric interpretations.
5. **Determinants:** Finally introduced, with a more mature perspective after the foundational theory is established.

This layout serves to cultivate a comprehensive understanding that prepares students for both theoretical pursuits and practical applications in physics, engineering, statistics, and computer science.

Who Should Consider Using Axler Linear Algebra Done Right?

The book is particularly suitable for:

- Undergraduate and graduate students seeking a rigorous theoretical foundation.
- Mathematics majors preparing for advanced courses in algebra, analysis, or topology.
- Instructors aiming to teach linear algebra from a modern, proof-oriented perspective.
- Self-learners who appreciate a clear, concise, and abstract treatment of the subject.

It may be less ideal for those whose primary objective is to master computational techniques or those looking for a highly applied and example-driven text.

Impact on Linear Algebra Education and Future Directions

Axler Linear Algebra Done Right has catalyzed a subtle shift in how linear algebra is perceived and taught. Its emphasis on theory over computation reflects a broader trend across mathematical education towards developing critical thinking and problem-solving skills grounded in deep understanding. The book's influence continues to grow, inspiring new editions, supplementary texts, and instructional materials that echo its philosophy.

Furthermore, as computational tools become ubiquitous, textbooks like Axler's that prioritize conceptual clarity are likely to become increasingly relevant. They prepare students not just to perform calculations but to understand the underlying structures that govern linear algebraic systems.

In essence, "axler linear algebra done right" encapsulates a transformative approach, challenging educators and students alike to rethink traditional learning pathways. Its legacy is not merely in the content it delivers but in the mindset it fosters—a mindset that values clarity, abstraction, and intellectual rigor in mastering linear algebra.

[Axler Linear Algebra Done Right](#)

axler linear algebra done right: Linear Algebra Done Right Sheldon Axler, 2014-11-05 This best-selling textbook for a second course in linear algebra is aimed at undergrad math majors and graduate students. The novel approach taken here banishes determinants to the end of the book. The text focuses on the central goal of linear algebra: understanding the structure of linear operators on finite-dimensional vector spaces. The author has taken unusual care to motivate concepts and to simplify proofs. A variety of interesting exercises in each chapter helps students understand and manipulate the objects of linear algebra. The third edition contains major improvements and revisions throughout the book. More than 300 new exercises have been added since the previous edition. Many new examples have been added to illustrate the key ideas of linear algebra. New topics covered in the book include product spaces, quotient spaces, and dual spaces. Beautiful new formatting creates pages with an unusually pleasant appearance in both print and electronic versions. No prerequisites are assumed other than the usual demand for suitable mathematical maturity. Thus the text starts by discussing vector spaces, linear independence, span, basis, and dimension. The book then deals with linear maps, eigenvalues, and eigenvectors. Inner-product spaces are introduced, leading to the finite-dimensional spectral theorem and its consequences. Generalized eigenvectors are then used to provide insight into the structure of a linear operator.

axler linear algebra done right: Linear Algebra Done Right Sheldon Axler, 2023-10-28 Now available in Open Access, this best-selling textbook for a second course in linear algebra is aimed at undergraduate math majors and graduate students. The fourth edition gives an expanded treatment of the singular value decomposition and its consequences. It includes a new chapter on multilinear algebra, treating bilinear forms, quadratic forms, tensor products, and an approach to determinants via alternating multilinear forms. This new edition also increases the use of the minimal polynomial to provide cleaner proofs of multiple results. Also, over 250 new exercises have been added. The novel approach taken here banishes determinants to the end of the book. The text focuses on the central goal of linear algebra: understanding the structure of linear operators on finite-dimensional vector spaces. The author has taken unusual care to motivate concepts and simplify proofs. A variety of interesting exercises in each chapter helps students understand and manipulate the objects of linear algebra. Beautiful formatting creates pages with an unusually student-friendly appearance in both print and electronic versions. No prerequisites are assumed other than the usual demand for suitable mathematical maturity. The text starts by discussing vector spaces, linear independence, span, basis, and dimension. The book then deals with linear maps, eigenvalues, and eigenvectors. Inner-product spaces are introduced, leading to the finite-dimensional spectral theorem and its consequences. Generalized eigenvectors are then used to provide insight into the structure of a linear operator. From the reviews of previous editions: Altogether, the text is a didactic masterpiece. — zbMATH The determinant-free proofs are elegant and intuitive. — American Mathematical Monthly The most original linear algebra book to appear in years, it certainly belongs in every undergraduate library — CHOICE

axler linear algebra done right: Linear Algebra Done Right Sheldon Axler, 1997-01-01 This text for a second course in linear algebra, aimed at math majors and graduates, adopts a novel approach by banishing determinants to the end of the book and focusing on understanding the structure of linear operators on vector spaces. The author has taken unusual care to motivate concepts and to simplify proofs. For example, the book presents - without having defined determinants - a clean proof that every linear operator on a finite-dimensional complex vector space has an eigenvalue. The book starts by discussing vector spaces, linear independence, span, basics, and dimension. Students are introduced to inner-product spaces in the first half of the book and shortly thereafter to the finite-dimensional spectral theorem. A variety of interesting exercises in each chapter helps students understand and manipulate the objects of linear algebra. This second

edition features new chapters on diagonal matrices, on linear functionals and adjoints, and on the spectral theorem; some sections, such as those on self-adjoint and normal operators, have been entirely rewritten; and hundreds of minor improvements have been made throughout the text.

axler linear algebra done right: Linear Algebra Done Right Sheldon Jay Axler, 1997

axler linear algebra done right: Beginning Functional Analysis Karen Saxe, 2013-04-17

This book is designed as a text for a first course on functional analysis for advanced undergraduates or for beginning graduate students. It can be used in the undergraduate curriculum for an honors seminar, or for a capstone course. It can also be used for self-study or independent study. The course prerequisites are few, but a certain degree of mathematical sophistication is required. A reader must have had the equivalent of a first real analysis course, as might be taught using [25] or [109], and a first linear algebra course. Knowledge of the Lebesgue integral is not a prerequisite. Throughout the book we use elementary facts about the complex numbers; these are gathered in Appendix A. In one specific place (Section 5.3) we require a few properties of analytic functions. These are usually taught in the first half of an undergraduate complex analysis course. Because we want this book to be accessible to students who have not taken a course on complex function theory, a complete description of the needed results is given. However, we do not prove these results.

axler linear algebra done right: Calculus III Jerrold Marsden, Alan Weinstein, 2012-12-06

The goal of this text is to help students learn to use calculus intelligently for solving a wide variety of mathematical and physical problems. This book is an outgrowth of our teaching of calculus at Berkeley, and the present edition incorporates many improvements based on our use of the first edition. We list below some of the key features of the book. Examples and Exercises The exercise sets have been carefully constructed to be of maximum use to the students. With few exceptions we adhere to the following policies . • The section exercises are graded into three consecutive groups: (a) The first exercises are routine, modelled almost exactly on the examples; these are intended to give students confidence. (b) Next come exercises that are still based directly on the examples and text but which may have variations of wording or which combine different ideas; these are intended to train students to think for themselves. (c) The last exercises in each set are difficult. These are marked with a star (*) and some will challenge even the best students. Difficult does not necessarily mean theoretical; often a starred problem is an interesting application that requires insight into what calculus is really about. • The exercises come in groups of two and often four similar ones.

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Pengelley, 2013-12-01 This book contains the stories of five mathematical journeys into new realms, told through the writings of the explorers themselves. Some were guided by mere curiosity and the thrill of adventure, while others had more practical motives. In each case the outcome was a vast expansion of the known mathematical world and the realization that still greater vistas remained to be explored. The authors tell these stories by guiding the reader through the very words of the mathematicians at the heart of these events, and thereby provide insight into the art of approaching mathematical problems. The book can be used in a variety of ways. The five chapters are completely independent, each with varying levels of mathematical sophistication. The book will be enticing to students, to instructors, and to the intellectually curious reader. By working through some of the original sources and supplemental exercises, which discuss and solve - or attempt to solve - a great problem, this book helps the reader discover the roots of modern problems, ideas, and concepts, even whole subjects. Students will also see the obstacles that earlier thinkers had to clear in order to make their respective contributions to five central themes in the evolution of mathematics.

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axler linear algebra done right: Mathematical Logic H.-D. Ebbinghaus, J. Flum, Wolfgang

Thomas, 1996-11-15 This introduction to first-order logic clearly works out the role of first-order

logic in the foundations of mathematics, particularly the two basic questions of the range of the axiomatic method and of theorem-proving by machines. It covers several advanced topics not commonly treated in introductory texts, such as Fraïssé's characterization of elementary equivalence, Lindström's theorem on the maximality of first-order logic, and the fundamentals of logic programming.

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axler linear algebra done right: Discrete Mathematics László Lovász, József Pelikán, Katalin Vesztergombi, 2006-05-10 Discrete mathematics is quickly becoming one of the most important areas of mathematical research, with applications to cryptography, linear programming, coding theory and the theory of computing. This book is aimed at undergraduate mathematics and computer science students interested in developing a feeling for what mathematics is all about, where mathematics can be helpful, and what kinds of questions mathematicians work on. The authors discuss a number of selected results and methods of discrete mathematics, mostly from the areas of combinatorics and graph theory, with a little number theory, probability, and combinatorial geometry. Wherever possible, the authors use proofs and problem solving to help students understand the solutions to problems. In addition, there are numerous examples, figures and exercises spread throughout the book. Laszlo Lovasz is a Senior Researcher in the Theory Group at Microsoft Corporation. He is a recipient of the 1999 Wolf Prize and the Godel Prize for the top paper in Computer Science. Jozsef Pelikan is Professor of Mathematics in the Department of Algebra and Number Theory at Eotvos Lorand University, Hungary. In 2002, he was elected Chairman of the Advisory Board of the International Mathematical Olympiad. Katalin Vesztergombi is Senior Lecturer in the Department of Mathematics at the University of Washington.

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poker chips, each of which can be red, white, blue, or green, such that each red chip is adjacent to at least 1 green chip? There are no prerequisites for this course beyond mathematical maturity. The book can be used for a semester course at the sophomore level as introduction to discrete mathematics for mathematics, computer science, and statistics students. The first five chapters can also serve as a basis for a graduate course for in-service teachers.

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axler linear algebra done right: The Joy of Sets Keith Devlin, 2012-12-06 This book provides an account of those parts of contemporary set theory of direct relevance to other areas of pure mathematics. The intended reader is either an advanced-level mathematics undergraduate, a beginning graduate student in mathematics, or an accomplished mathematician who desires or needs some familiarity with modern set theory. The book is written in a fairly easy-going style, with minimal formalism. In Chapter 1, the basic principles of set theory are developed in a 'naive' manner. Here the notions of 'set', 'union', 'intersection', 'power set', 'relation', 'function', etc., are defined and discussed. One assumption in writing Chapter 1 has been that, whereas the reader may have met all of these 1 concepts before and be familiar with their usage, she may not have considered the various notions as forming part of the continuous development of a pure subject (namely, set theory). Consequently, the presentation is at the same time rigorous and fast.

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easier. In Elements of Algebra we sought solution by radicals, and this led to the concepts of fields and groups and their fusion in the celebrated theory of Galois. In the present book we seek integer solutions, and this leads to the concepts of rings and ideals which merge in the equally celebrated theory of ideals due to Kummer and Dedekind. Solving equations in integers is the central problem of number theory, so this book is truly a number theory book, with most of the results found in standard number theory courses. However, numbers are best understood through their algebraic structure, and the necessary algebraic concepts rings and ideals have no better motivation than number theory. The first nontrivial examples of rings appear in the number theory of Euler and Gauss. The concept of ideal today as routine in ring theory as the concept of normal subgroup is in group theory also emerged from number theory, and in quite heroic fashion. Faced with failure of unique prime factorization in the arithmetic of certain generalized integers, Kummer created in the 1840s a new kind of number to overcome the difficulty. He called them ideal numbers because he did not know exactly what they were, though he knew how they behaved.

axler linear algebra done right: Transformation Geometry George E. Martin, 2012-12-06 Transformation geometry is a relatively recent expression of the successful venture of bringing together geometry and algebra. The name describes an approach as much as the content. Our subject is Euclidean geometry. Essential to the study of the plane or any mathematical system is an understanding of the transformations on that system that preserve designated features of the system. Our study of the automorphisms of the plane and of space is based on only the most elementary high-school geometry. In particular, group theory is not a prerequisite here. On the contrary, this modern approach to Euclidean geometry gives the concrete examples that are necessary to appreciate an introduction to group theory. Therefore, a course based on this text is an excellent prerequisite to the standard course in abstract algebra taken by every undergraduate mathematics major. An advantage of having no college mathematics prerequisite to our study is that the text is then useful for graduate mathematics courses designed for secondary teachers. Many of the students in these classes either have never taken linear algebra or else have taken it too long ago to recall even the basic ideas. It turns out that very little is lost here by not assuming linear algebra. A preliminary version of the text was written for and used in two courses—one was a graduate course for teachers and the other a sophomore course designed for the prospective teacher and the general mathematics major taking one course in geometry.

axler linear algebra done right: Mathematical Vistas Peter Hilton, Derek Holton, Jean Pedersen, 2013-06-29 Focusing Your Attention We have called this book Mathematical Vistas because we have already published a companion book Mathematical Reflections in the same series; indeed, the two books are dedicated to the same principal purpose - to stimulate the interest of bright people in mathematics. It is not our intention in writing this book to make the earlier book a prerequisite, but it is, of course, natural that this book should contain several references to its predecessor. This is especially - but not uniquely - true of Chapters 3, 4, and 6, which may be regarded as advanced versions of the corresponding chapters in Mathematical Reflections. Like its predecessor, the present work consists of nine chapters, each devoted to a lively mathematical topic, and each capable, in principle, of being read independently of the other chapters.' Thus this is not a text which - as is the intention of most standard treatments of mathematical topics - builds systematically on certain common themes as one proceeds. 1 Mathematical Reflections - In a Room with Many Mirrors, Springer Undergraduate Texts in Mathematics, 1996; Second Printing 1998. We will refer to this simply as MR. 2 There was an exception in MR; Chapter 9 was concerned with our thoughts on the doing and teaching of mathematics at the undergraduate level.

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