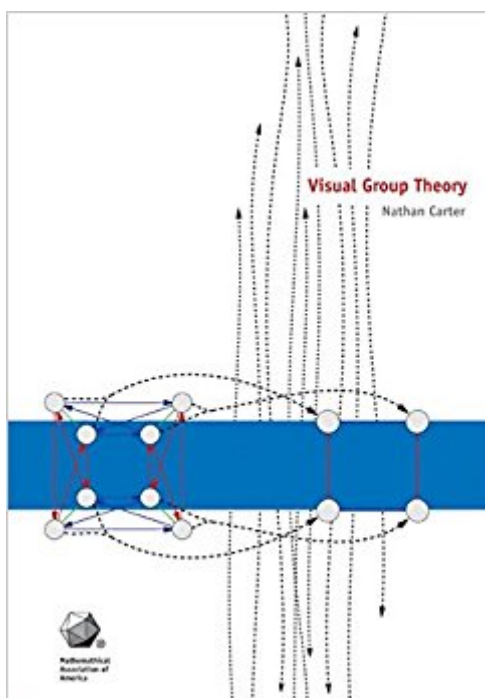


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# Visual Group Theory (MAA Classroom Resource Materials) (MAA Problem Book Series)



## Synopsis

Group theory is the branch of mathematics that studies symmetry, found in crystals, art, architecture, music and many other contexts. But its beauty is lost on students when it is taught in a technical style that is difficult to understand. Visual Group Theory assumes only a high school mathematics background and covers a typical undergraduate course in group theory from a thoroughly visual perspective. The more than 300 illustrations in Visual Group Theory bring groups, subgroups, homomorphisms, products, and quotients into clear view. Every topic and theorem is accompanied with a visual demonstration of its meaning and import, from the basics of groups and subgroups through advanced structural concepts such as semidirect products and Sylow theory.

## Book Information

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## Customer Reviews

Carter presents the group theory portion of abstract algebra in a way that allows student to actually see, using a multitude of examples and applications, the basic concepts of group theory...The numerous images (more than 300) are the heart of the text. As this work enables readers to see, experiment with, and understand the significance of groups, they will accumulate examples of groups and their properties that will serve them well in future endeavors in mathematics.

Recommended --J. T. Zerger, ChoiceIf you teach abstract algebra, then this book should be a part of the resources you use. While the phrase "visual abstract algebra" may seem to be a contradiction, the diagrams in this book are an existence proof to the contrary. They are clear,

colorful and concise very easy to understand and sure to aid the students that have difficulty in internalizing the abstract nature of the subject matter. Especially appealing are the colorized tables of groups and their operations. The approach is a very slow one in the sense that a foundation of common operations and rearrangements that are groups that are first examined with text and images. A large number of exercises are included at the end of each chapter and detailed solutions with colored images found in an appendix. this book could also serve as a text in a first course in abstract algebra provided that the course is limited to groups only or you used supplementary material for rings and fields. If your course is restricted to groups only, then this is the best book available. --Charles Ashbacher, Journal of Recreational Mathematics

This text approaches the learning of group theory visually. It allows the student to see groups, experiment with groups and understand their significance. It is ideal as a supplement for a first course in group theory or alternatively as recreational reading.

An outstanding introduction to the theory of groups. Great for developing intuition and even for self-learning. An enjoyable book overall, very good editing with a nice visual appeal on every page.

This is a great book for anyone interested in mathematics. I bought it just to read after reading about it in another text but find myself returning to it again and again to sharpen my understanding with the examples.

I was a physics B.S. who is now pursuing a Ph.D. in applied physics. Was very intimidated by the very math-y and formal books on group theory. Have been working through all the problems through the first 5/6 chapters so far, the ones whose answers are in the back of the book. Already feel much more confident about the fundamentals of group theory. The referenced software the author created is also very helpful and creative. Plan to continue to work problems all the way to the end, after which I'm confident I'll feel like I've got a solid grasp on group theory.

Great book and excellent service!

I am a self study student of mathematics having acquired a taste for it later in life. I only had 1st year calculus and linear algebra in university nearly 20 years ago. This book is a very readable introduction to group theory. I suppose it lacks some of the rigor a truly dedicated mathematician

might require, but I have really been enjoying teaching myself group theory from this book. There are lots of examples to think about and many problems to work through. Very readable.

Cannot believe my son wanted a textbook for Christmas! But he did and this was it. He was happy with it.

I am reading this book half way through, it is amazing how 'readable' this book is compared to other Abstract Algebra books. Although this book inherits much ideas and notations from the other older book: "Groups and Their Graphs" by Grossman and Magnus, it elaborates with more Cayley Diagrams (over 300 of them) and more detailed explanations. The book is well written and well illustrated. I took one night to read through the first 5 chapters, that shows how easy it is to understand the concepts. (It helps, may be, because I had read the Grossman and Magnus book, however the later is not a pre-requisite reading). I am also very pleased that the author uses Cayley diagrams to show how Subgroups, Cosets and Normal Subgroups could be visualized. This is a real break-through in teaching abstract stuff like Group Theory - a real tough nut to crack for most Math students. Don't forget the inventor of Group - Evariste Galois - had hard time making himself understood by even the greatest mathematicians of his time - Cauchy, Fourier, Poisson, etc. This is the book to read before anyone attempting to study Group Theory in a formal textbook way.

1. I give it a five as an introductory book. In terms of points for a book on its own, its a 5 out of 10. The best entrance to abstract algebra (in my opinion). 2. For math hobbyist, it will show you the beauty of mathematics. (This is vague, and sorry I don't want to elaborate on this) 3. For serious math learners, this certainly will not be your only algebra book, but by reading this you will have some useful tools/insights (really really useful insights) in hand when you begin your second book on the subject. 4. The problems in the book are okay~~~~~, but the meat of the book lies in the main readings. 5. Many typos, mistakes, errors, and not conventional and sometimes confusing notations (especially those that have to do with "multiplication", where in a usual (abstract) algebra book  $ab$  means  $b$  first then  $a$  acts on  $b$ , but this is not always consistent in this book). 6. But what-the-hell to 5, this will not be your only book, take the things you need and move on. We don't need a diamond to kill a bird, any big enough rock will do the job.

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