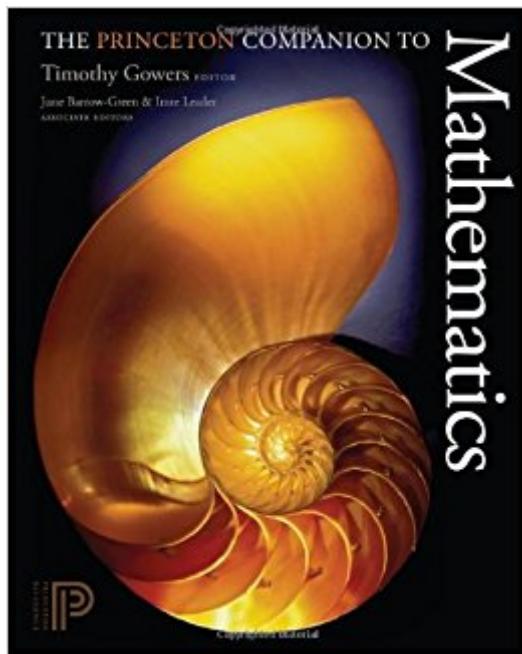


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The Princeton Companion To Mathematics



Synopsis

This is a one-of-a-kind reference for anyone with a serious interest in mathematics. Edited by Timothy Gowers, a recipient of the Fields Medal, it presents nearly two hundred entries, written especially for this book by some of the world's leading mathematicians, that introduce basic mathematical tools and vocabulary; trace the development of modern mathematics; explain essential terms and concepts; examine core ideas in major areas of mathematics; describe the achievements of scores of famous mathematicians; explore the impact of mathematics on other disciplines such as biology, finance, and music--and much, much more. Unparalleled in its depth of coverage, *The Princeton Companion to Mathematics* surveys the most active and exciting branches of pure mathematics. Accessible in style, this is an indispensable resource for undergraduate and graduate students in mathematics as well as for researchers and scholars seeking to understand areas outside their specialties.

Features nearly 200 entries, organized thematically and written by an international team of distinguished contributors

Presents major ideas and branches of pure mathematics in a clear, accessible style

Defines and explains important mathematical concepts, methods, theorems, and open problems

Introduces the language of mathematics and the goals of mathematical research

Covers number theory, algebra, analysis, geometry, logic, probability, and more

Traces the history and development of modern mathematics

Profiles more than ninety-five mathematicians who influenced those working today

Explores the influence of mathematics on other disciplines

Includes bibliographies, cross-references, and a comprehensive index

Contributors include: Graham Allan, Noga Alon, George Andrews, Tom Archibald, Sir Michael Atiyah, David Aubin, Joan Bagaria, Keith Ball, June Barrow-Green, Alan Beardon, David D. Ben-Zvi, Vitaly Bergelson, Nicholas Bingham, Béla Bollobás, Henk Bos, Bodil Branner, Martin R. Bridson, John P. Burgess, Kevin Buzzard, Peter J. Cameron, Jean-Luc Chabert, Eugenia Cheng, Clifford C. Cocks, Alain Connes, Leo Corry, Wolfgang Coy, Tony Crilly, Serafina Cuomo, Mihalis Dafermos, Partha Dasgupta, Ingrid Daubechies, Joseph W. Dauben, John W. Dawson Jr., François de Gandt, Persi Diaconis, Jordan S. Ellenberg, Lawrence C. Evans, Florence Fasanelli, Anita Burdman Feferman, Solomon Feferman, Charles Fefferman, Della Fenster, José Ferreirós, David Fisher, Terry Gannon, A. Gardiner, Charles C. Gillispie, Oded Goldreich, Catherine Goldstein, Fernando Q. Gouvêa, Timothy Gowers, Andrew Granville, Ivor Grattan-Guinness, Jeremy Gray, Ben Green, Ian Grojnowski, Niccolò Guicciardini, Michael Harris, Ulf Hashagen, Nigel Higson, Andrew Hodges, F. E. A. Johnson, Mark Joshi, Kiran S. Kedlaya, Frank Kelly, Sergiu Klainerman, Jon Kleinberg, Israel Kleiner, Jacek Klinowski, Eberhard Knobloch, János Kollár, T. W. Körner, Michael Krivelevich, Peter D. Lax, Imre Leader, Jean-François Le Gall, W. B. R. Lickorish, Martin W. Liebeck, Jesper

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Got my copy a week ago. What an exceptional book! Any of the random samples I read so far provides a informative, yet pleasant read. Gowers (Rouse Ball Professor of Mathematics in Cambridge) did a fantastic job in editing the many articles into a coherent and surprisingly accessible overview of modern mathematics. From inception to publication of this book took Gowers and his associate editors some 6 years. The amount of editorial attention given to this publication clearly shows and translated into a book that is - unlike any other math book I know of - easy to read and of high quality. This book provides lots of material that is of interest to non-mathematicians. As is mentioned in one of the other reviews here, this heavy volume does not contain a separate chapter on mathematical physics, yet as a physicist I found lots of material directly relevant to physics. There is a very interesting chapter on the general theory of relativity, and lots of material on quantum mechanics. Also fundamental concepts highly relevant in physics such as spherical harmonics, dynamical systems, deterministic chaotic behavior, phase transitions, Lie groups, etc. are covered in inviting shorter sections. Each of the subjects is introduced in such a way that the reader first gains an intuitive understanding of the concept, that subsequently gets deepened via a more rigorous approach. If only there was a similar 'companion' to modern physics! (The book of Oxford's Emeritus Rouse Ball professor Roger Penrose, *The Road to Reality: A Complete Guide to the Laws of the Universe* comes close, but falls short of being truly PCM's equivalent in physics.) If you're interested in math, don't hesitate and buy this book. (And be quick: I bought it here at for just over US\$71. In the meantime, the price has increased already by more than US\$5... ;-)

As a Computer Scientist, I've found this book exceptionally useful over the years. I use it as a quick reference for mathematics, particularly in cases where I lack the need (or, more often, the desire) to pull a topic-specific book off of my shelf. The presentation is both practical and enjoyable; useful for both the appreciation and the application of mathematics.

This wonderful volume is one of four works I always keep in digital or desk drawer reach while reading/studying/ referencing any other math book or journal article, the complete list being:--*A Encyclopedia Of Mathematics* (Science Encyclopedia)--*A The Princeton Companion to Mathematics*--*A Handbook of Mathematical Functions: with Formulas, Graphs, and Mathematical Tables* (Dover Books on Mathematics)--*A NIST Handbook of Mathematical Functions* (Being of course the 2010 update of the Abramowitz classic above). Given these four, there is hardly a topic from among the current 495 math fields of study that isn't at least explained in enough detail to save

LOTS of time on link expeditions. At minimum, these give head starts on alphabetized keywords that will quickly fill holes in any research project, class, or syllabus.

If you have a working math background and want to look at areas you never studied this is a great introduction. The preface says it was designed to introduce various areas of math to people with a math background in other areas. It works very well in that role. Although it displays only on my PC not on my paper-white the display is convenient and works very well. I am not a great typo hunter but have not found any.

This is an outstanding depiction of the mathematical landscape compiled by a team of subject matter experts. The beautifully written articles are easy to read and yet substantive. If you spend your days wading through the silos of specified texts, fragmented course handouts and assignments and wish that someone would make your life easier by describing the broader picture, this is a truly great book to buy.

I own both the hardbound and the Kindle versions of this book. I really like the breadth and consistency of coverage of mathematics and mathematicians. Sure there's a lot of wiki content on the net for each topic but the consistency and quality of content isn't generally found in a single resource such as The Princeton Companion. The real issue is the poor Kindle version. many graphic elements that don't resize with changes in font size in the reader, insertion of a graphic for such things as $|R$ for the Reals instead of typesetting it, white backgrounds on images that don't work with the sepia and black backgrounds and so on. It is really terrifically annoying that time and again books with heavy mathematical content beautifully typeset in physical or print replica editions are foisted off on readers in inadequately executed eReader formats such as mobi and ePub. If you check my reviews you'll find many Kindle formatted math books reviewed of which only the print replica versions are acceptable.

I haven't seen the printed version of this book, but it must be huge. This book covers a lot of topics in depth and you can regard it as a complement to the online Wikipedia pages or the Mathworld pages on the same subjects. I'm very happy with it, but I can't say that I've read the whole thing. It's a reference: very few people will ever read the whole thing. I'm an ex-math major picking his way through Galois Theory thirty years after graduation (and I wander into a lot of other topics, too). That's what I use this for. It would be interesting to hear what some research mathematicians think

of it.

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