



Heavenly Mathematics: The Forgotten Art of Spherical Trigonometry

By Glen Van Brummelen

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Heavenly Mathematics traces the rich history of spherical trigonometry, revealing how the cultures of classical Greece, medieval Islam, and the modern West used this forgotten art to chart the heavens and the Earth. Once at the heart of astronomy and ocean-going navigation for two millennia, the discipline was also a mainstay of mathematics education for centuries and taught widely until the 1950s. Glen Van Brummelen explores this exquisite branch of mathematics and its role in ancient astronomy, geography, and cartography; Islamic religious rituals; celestial navigation; polyhedra; stereographic projection; and more. He conveys the sheer beauty of spherical trigonometry, providing readers with a new appreciation of its elegant proofs and often surprising conclusions. *Heavenly Mathematics* is illustrated throughout with stunning historical images and informative drawings and diagrams. This unique compendium also features easy-to-use appendixes as well as exercises that originally appeared in textbooks from the eighteenth to the early twentieth centuries.

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Editorial Review

Review

One of *Choice's* Outstanding Academic Titles for 2013

Shortlisted for the 2013 BSHM Neumann Book Prize, British Society for the History of Mathematics

"In this grand chronicle of the science behind the origins of our 4.6-billion-year-old Solar System, John Chambers and Jacqueline Mitton peruse everything from the giant collision thought to have formed our Moon to the nature of meteorites."--**Rosalind Metcalfe, *Nature***

"The present book is very well written; it leaves a clear impression that the author intended to endear--not merely present and teach--spherical trigonometry to the reader. Although not a history book, there are separate chapters shedding light on the approaches to the subject in the ancient, medieval, and modern times. There are also chapters on spherical geometry, polyhedra, stereographic projection and the art of navigation. The book is thoroughly illustrated and is a pleasant read. Chapters end with exercises; the appendices contain a long list of available and not so available textbooks and recommendations for further reading organized by individual chapters. The book made a valuable addition to my library. I freely recommend it to math teachers and curious high schoolers."--**Alexander Bogomolny, *CTK Insights***

"A no-nonsense introduction to spherical trigonometry."--**Book News, Inc.**

"A beautiful popular book."--**ThatsMaths.com**

"Full of academic, textbook content, the book is a delight to math students. So if you are game for a journey into the world of spherical trigonometry, pick up the book. Van Brummelen gives exercises at the end of the chapters that can be fun."--**R. Balashankar, *Organiser***

"*Heavenly Mathematics* is a truly enjoyable description of the somewhat forgotten science of spherical trigonometry. . . . As readers discover this discipline, they will also appreciate the beauty inherent in the topic."--**Choice**

"*Heavenly Mathematics* proves the value of bringing a fascinating piece of mathematical history within the grasp of the general reader."--**Florin Diacu, *Literary Review of Canada***

"Van Brummelen has written a wonderful introduction . . . that draws on the history of [spherical trigonometry] to illuminate the mathematics itself and at the same time gives readers a real sense of what research in the history of early mathematics is all about."--**Metascience**

"[*Heavenly Mathematics*] is an excellent survey of spherical trigonometry. . . . Simply an appreciation of a beautiful lost subject, with historical overtones. . . . [D]istinguishable for its appealingly fresh style."--**Mathematical Reviews**

"[*Heavenly Mathematics*] is a lovely book to read. . . . [A] wonderful introduction for anyone who wishes to learn more about this subject. . . . I am in full agreement with the author that spherical trigonometry ought to be brought to a wider audience, and I believe that this is the book to do it."--**Mathematics Today**

"Engaging, clear and not overly technical; you can safely lend this book to your friends in the history department. . . . *[Heavenly Mathematics]* is excellent."--**Zentralblatt MATH**

"Heavenly Mathematics will be of interest to mathematically inclined historians of science and also to students of mathematics and engineering. Because spherical trigonometry is relevant in applications of modern science, this elegant book may even contribute to a renaissance of the subject."--**Jan P. Hogendijk, Isis**

"This book could serve as an excellent textbook for any secondary school mathematics classroom at or above the level of geometry and certainly trigonometry; as the basis for a high school honors class; or as a textbook and seminar topic for college students."--**Teresa Floyd, Mathematics Teacher**

"Any reader of this book (and there should be many) will see how present day mathematics may be viewed through the kaleidoscope of its historical origins. . . . Glen Van Brummelen has written a beautifully produced book that includes fascinating biographical detail at every stage of his narrative."--**P.N. Ruane, Mathematical Gazette**

"An engaging read that will appeal to historians of science, mathematicians, trigonometry teachers, and anyone interested in the history of mathematics."--**Elizabeth Hamm, Aestimatio Critical Reviews in the History of Science**

From the Back Cover

"Heavenly Mathematics is heavenly, is mathematics, and is so much more: history, astronomy, geography, and navigation, replete with historical illustrations, elegant diagrams, and charming anecdotes. I haven't followed mathematical proofs with such delight in decades. If, as the author laments, spherical trigonometry was in danger of extinction, this book will give it a long-lasting reprieve."--**David J. Helfand, president of the American Astronomical Society**

"This beautifully written book on an unusual topic, with its wealth of historical information about astronomy, navigation, and mathematics, is greatly to be welcomed."--**Robin Wilson, president of the British Society for the History of Mathematics, author of *Four Colors Suffice: How the Map Problem Was Solved***

"Written by the leading expert on the subject, this engaging book provides an in-depth historical introduction to spherical trigonometry. *Heavenly Mathematics* breathes new and interesting life into a topic that has been slumbering for far too long."--**June Barrow-Green, associate editor of *The Princeton Companion to Mathematics***

"Heavenly Mathematics is a very good book. It offers an interesting, accessible, and entertaining introduction to spherical trigonometry, which used to be a standard school topic but is now rarely studied. Interesting stories, engaging illustrations, and practical examples come together to enhance the reader's pleasure and understanding."--**Fernando Q. Gouvêa, Colby College**

"Van Brummelen provides not only a wonderful historical treatment of spherical trigonometry but also a modern one that shows how the ancient and medieval methods were replaced by newer and simpler means of problem solving. Many students will find this a fascinating and worthwhile subject."--**Victor J. Katz, editor of *The Mathematics of Egypt, Mesopotamia, China, India, and Islam***

About the Author

Glen Van Brummelen is coordinator of mathematics and the physical sciences at Quest University Canada

and president of the Canadian Society for History and Philosophy of Mathematics. His books include *The Mathematics of the Heavens and the Earth: The Early History of Trigonometry* (Princeton) and *Mathematics and the Historian's Craft*.

Users Review

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Here thing why this kind of Heavenly Mathematics: The Forgotten Art of Spherical Trigonometry are different and trusted to be yours. First of all reading a book is good nonetheless it depends in the content from it which is the content is as scrumptious as food or not. Heavenly Mathematics: The Forgotten Art of Spherical Trigonometry giving you information deeper since different ways, you can find any guide out there but there is no book that similar with Heavenly Mathematics: The Forgotten Art of Spherical Trigonometry. It gives you thrill reading through journey, its open up your personal eyes about the thing that happened in the world which is might be can be happened around you. You can bring everywhere like in playground, café, or even in your technique home by train. Should you be having difficulties in bringing the published book maybe the form of Heavenly Mathematics: The Forgotten Art of Spherical Trigonometry in e-book can be your choice.

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