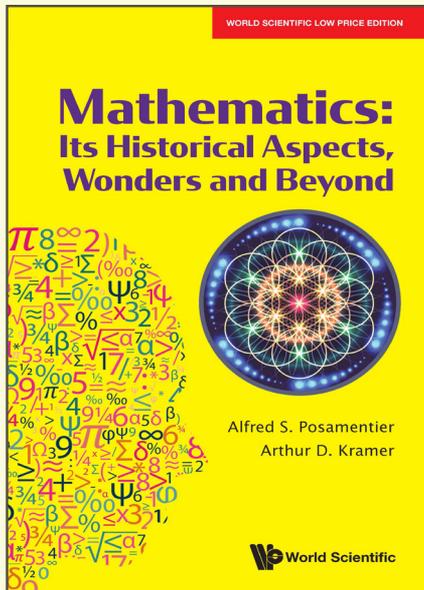# Mathematics
Its Historical Aspects, Wonders and Beyond

By **Alfred S. Posamentier**
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ABOUT THE BOOK

Whenever the topic of mathematics is mentioned, people tend to indicate their weakness in the subject as a result of not having enjoyed its instruction during their school experience. Many students unfortunately do not have very positive experiences when learning mathematics, which can result from teachers who have a tendency "to teach to the test". This is truly unfortunate for several reasons. First, basic algebra and geometry, which are taken by almost all students, are not difficult subjects, and all students should be able to master them with the proper motivational instruction. Second, we live in a technical age, and being comfortable with basic mathematics can certainly help you deal with life's daily challenges. Other, less tangible reasons, are the pleasure one can experience from understanding the many intricacies of mathematics and its relation to the real world, experiencing the satisfaction of solving a mathematical problem, and discovering the intrinsic beauty and historical development of many mathematical expressions and relationships. These are some of the experiences that this book is designed to deliver to the reader.

The book offers 101 mathematical gems, some of which may require a modicum of high school mathematics and others, just a desire to carefully apply oneself to the ideas. Many folks have spent years encountering mathematical terms, symbols, relationships and other esoteric expressions. Their origins and their meanings may never have been revealed, such as the symbols +, -, =, π. ∞, $\sqrt{}$, Σ, and many others. This book provides a delightful insight into the origin of mathematical symbols and popular theorems such as the Pythagorean Theorem and the Fibonacci Sequence, common mathematical mistakes and curiosities, intriguing number relationships, and some of the different mathematical procedures in various countries. The book uses a historical and cultural approach to the topics, which enhances the subject matter and greatly adds to its appeal. The mathematical material can, therefore, be more fully appreciated and understood by anyone who has a curiosity and interest in mathematics, especially if in their past experience they were expected to simply accept ideas and concepts without a clear understanding of their origins and meaning. It is hoped that this will cast a new and positive picture of mathematics and provide a more favorable impression of this most important subject and be a different experience than what many may have previously encountered. It is also our wish that some of the fascination and beauty of mathematics shines through in these presentations.

READERSHIP

General readership as well as to teachers and students of mathematics at the secondary level.

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ABOUT THE AUTHORS

Alfred S. Posamentier is currently Distinguished Lecturer at New York City College of Technology of the City University of New York. Prior to that he was Executive Director for Internationalization and Funded Programs at Long Island University, New York. This was preceded by 5 years as Dean of the School of Education and Professor of Mathematics Education at Mercy College, New York. Before that he was for 40 years at The City College of the City University of New York, at which he is now Professor Emeritus of Mathematics Education at and Dean Emeritus of the School of Education.

He is the author and co-author of more than 75 mathematics books for teachers, secondary and elementary school students, as well as the general readership. Dr Posamentier is also a frequent commentator in newspapers and journals on topics related to education.

Professor Arthur Kramer began his primary academic life in the New York City borough of Brooklyn, NY and then spent the bulk of his time in Manhattan at Stuyvesant High School, Cooper Union Engineering School, Columbia University and New York University earning a PhD in Mathematics. Having worked as an engineer for a couple of years, he then honed his teaching skills for a short time at a high school and then went on to teach Mathematics in New York University. Soon after, a life-long career began at New York City College of Technology of the City University of New York teaching a variety of mathematics courses, with a specialty in the history and culture of mathematics and also teaching in the Physics, Electrical Engineering and Computer Engineering departments. During this time, he spent several years as an adjunct Professor of Mathematics at the New School for Social Research.

While early on he was interested in mathematical research and published several articles, and soon a calling in mathematics education became paramount, resulting in educational grants and programs at New York City College of Technology. In particular, he developed a curriculum for a program called "Access for Women," which held weekend sessions for high school girls where they did basic experiments in various engineering disciplines hoping to motivate them to enter one of these fields.

Professor Kramer has published four textbooks in technical mathematics, his latest being *Mathematics for Electricity and Electronics* and continues to teach in the Electrical Engineering department at his college. When not devoting time to education and writing, he is an accomplished offshore sailor who has sailed his Ketch to Bermuda, the Caribbean and across the Atlantic twice.