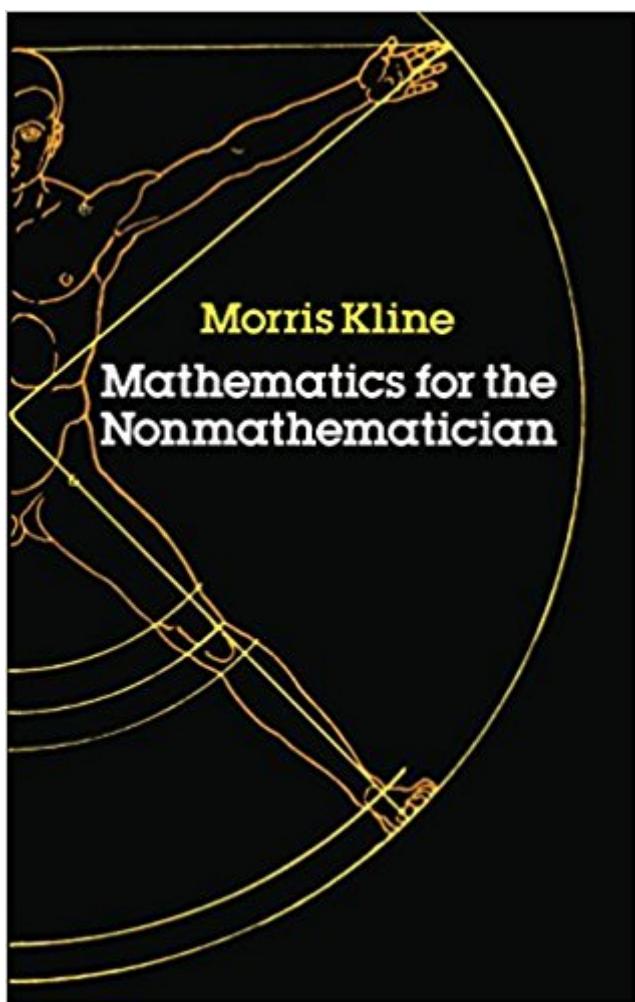


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Mathematics For The Nonmathematician (Dover Books On Mathematics)



Synopsis

Practical, scientific, philosophical, and artistic problems have caused men to investigate mathematics. But there is one other motive which is as strong as any of these—“the search for beauty. Mathematics is an art, and as such affords the pleasures which all the arts afford.” In this erudite, entertaining college-level text, Morris Kline, Professor Emeritus of Mathematics at New York University, provides the liberal arts student with a detailed treatment of mathematics in a cultural and historical context. The book can also act as a self-study vehicle for advanced high school students and laymen. Professor Kline begins with an overview, tracing the development of mathematics to the ancient Greeks, and following its evolution through the Middle Ages and the Renaissance to the present day. Subsequent chapters focus on specific subject areas, such as “Logic and Mathematics,” “Number: The Fundamental Concept,” “Parametric Equations and Curvilinear Motion,” “The Differential Calculus,” and “The Theory of Probability.” Each of these sections offers a step-by-step explanation of concepts and then tests the student’s understanding with exercises and problems. At the same time, these concepts are linked to pure and applied science, engineering, philosophy, the social sciences or even the arts. In one section, Professor Kline discusses non-Euclidean geometry, ranking it with evolution as one of the “two concepts which have most profoundly revolutionized our intellectual development since the nineteenth century.” His lucid treatment of this difficult subject starts in the 1800s with the pioneering work of Gauss, Lobachevsky, Bolyai and Riemann, and moves forward to the theory of relativity, explaining the mathematical, scientific and philosophical aspects of this pivotal breakthrough. Mathematics for the Nonmathematician exemplifies Morris Kline’s rare ability to simplify complex subjects for the nonspecialist.

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Customer Reviews

I LIKE THIS BOOK. WHILE THE MATH PART IS NOT NECESSARILY MY FAVORITE PART, THE HISTORY AND EXPLANATIONS ARE QUITE GOOD AND OFTEN READ MORE THAN ONCE. THE CHAPTER QUESTIONS CAUSE ME TO THINK AND TRY TO INTEGRATE WITH OTHER HISTORY I KNOW FROM OTHER SOURCES AND HELPS MAKE THE ANSWERS FUN AND CEMENT THE INFORMATION IN MY HEAD. I FIND IT ENJOYABLE AND USEFUL IN GETTING THE FRONTAL LOBE WORKING AGAIN.

I had always been intimidated by mathematics at almost every level. This book was used as a text for a required entry level college course - and it changed my attitude to mathematics. It is more accurately described as 'the history and culture of math'. The book progresses through how humans began to develop and use math and how it developed in complexity because certain problems had to be solved; for example, commerce and science (very broadly), including astronomy. Although I am still not a 'mathophile', I did learn to appreciate math in a different way. The math problems to solve are always set in the context of how and why the problem needed to be solved. I wish this had been introduced to me in high school - before I developed my fear of math.

I was debating whether or not I wanted to read this book, but after paging through it, I decided I would. I'm glad I did. The title states that this book is for the non-mathematician, but I would recommend it for anyone who has an interest in math. Kline covers the history of mathematics from earliest times providing for the reader sample problems along the way. The history of mathematics, and that of Western civilization, begins primarily with Egypt and Babylonia. Starting here, Kline introduces us to the math utilized by these people. He continues on through the classical Greek period, the Alexandrian Greek period, the Hindus and Arabs, the early and medieval Europe, the

renaissance, and on up to our present day. Along the way we learn about the fundamental concepts of numbers, algebra, Euclidean geometry, mathematical order in nature, charting the Earth and the Heavens; and by chapter ten, we are learning about mathematics and painting in the Renaissance. A little over half way through the book, Kline notes: "...we have come to recognize the broader significance and usefulness of functions and mathematical processes for science in general. However, we have hardly penetrated at yet the mathematical domain of functions nor have we learned enough application to sense its real power." There is much more he has to tell us. He then covers projective and coordinate geometric concepts, before delving into what feels to me like something out of a physics class. We are now talking about parametric equations which are used to describe trajectories of, let's say, cannon balls and such. There's coverage of distance, velocity and acceleration formulas and their derivations (which is quite nicely explained), and the law of gravitation before getting into differential and calculus fundamentals and their origins. The remaining chapters cover formulas relating to gravitation, differentiation, integration (touching on a bit more of calculus here), oscillatory motion, analysis of musical sounds using trigonometry, non-Euclidean geometries, various algebras (modular, sets, models), statistics, and probability. Kline concludes this historical survey of mathematics by saying, "Nevertheless, mathematics remains the method par excellence for the investigation, representation, and mastery of nature. In those domains where it is effective it is all we have; if it is not reality itself, it is the closest to reality we can get."

Oh I did not want this book! It's a great book, hence the four stars, but I was looking for a mathematics refresher, and THIS IS NOT IT. This book actually does more to cover the historical background and context of different mathematical concepts, but provides few textbook-like examples, work-throughs, and problems for you to figure out. If you are looking for a simple, straightforward refresher, look elsewhere (and let me know what you found!). However, if you have the energy and curiosity for it, something I had years ago but not now, you will wish you had found this book sooner.

Brilliant book for a math enthusiast. Unique mix of history and and practice exercises. Great for every age group.

I used to tutor high school kids in math. Man I wish I could have given this book out like candy. I wish every single person on the planet would read this book. It puts math in what most math classes lack; context. If I could sum up why this book is awesome in one word, that would be it. Context. But

that's not all; it's very readable, it gives you a very good grasp of mathematics that you're likely to come across in high school, and it's just plain enjoyable. This book will change the way you saw math in high school.

Great

This is an amazing book. Kline really goes out of his zone to provide the non-mathematician a well-rounded understanding of mathematics. I actually read this book as an e-book, but I liked it so much I decided to buy the hardcover. I have also read the first volume of his more lengthier History of Mathematics, which was an awful lot to take in. In contrast, this book has it all in a single volume, albeit it was designed as a university textbook, but anyone having interest in mathematics would benefit from his work. I really appreciated his explanations, examples and the historical development of the calculus, which makes for quite an amazing read. For us social scientists, the chapter on statistics and standard deviation is well worth the effort. My only gripe is that there are too many sample problems at the end of each chapter. A 4 3/4 star for sure!

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