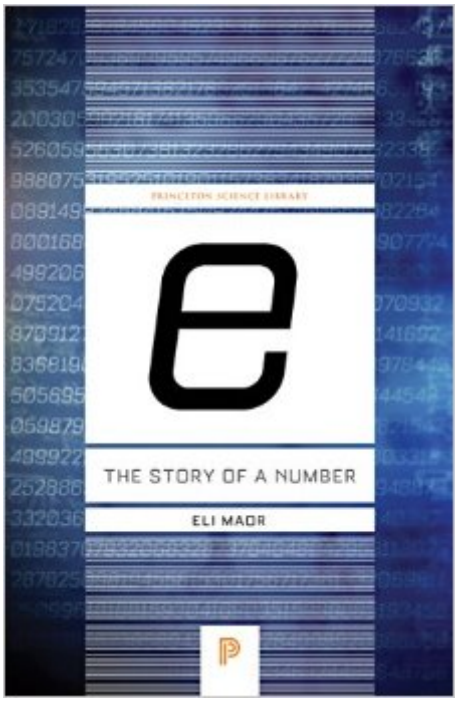
"e:" The Story Of A Number (Princeton Science Library)



Synopsis

The interest earned on a bank account, the arrangement of seeds in a sunflower, and the shape of the Gateway Arch in St. Louis are all intimately connected with the mysterious number e. In this informal and engaging history, Eli Maor portrays the curious characters and the elegant mathematics that lie behind the number. Designed for a reader with only a modest mathematical background, this biography brings out the central importance of e to mathematics and illuminates a golden era in the age of science.

Book Information

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Customer Reviews

This is the second book by Eli Maor that I have read and reviewed in as many months (the previous book was "To Infinity and beyond"). As I was reading this latest book I thought several times that the title was wrong. I think a more appropriate title might be "A popular introduction to calculus" or "The road to calculus." Then, again, he does more than just calculus, too. So I’m not sure what to call it. It’s more than just about e, and it’s more than just about calculus. It’s all that, with a lot of other interesting tidbits tied in as well. While Eli does spend quite a bit of time discussing e, this book goes well beyond a simple linear history of a number that’s fundamental to modern mathematics.Eli begins his story with John Napier and the invention/use of logarithms as tools for calculation. I found this introduction interesting because it reminded me how valuable calculation tools were, in the days before electronic calculators. I even found myself rummaging through my desk for that long-forgotten slide rule and remembering with a degree of nostalgia the many hours spent working

through problems in mathematics and physics during my high school years, and how I'd pride myself on being able to carry the a full three significant digits through a complex sting of calculations.It seems as though the initial chapters of Maor's book deal more with the history of e than does the middle of the book. Somewhere around page 40 Maor moves away from mathematical history aimed squarely at natural logarithms and focuses more on what is (I suspect) his true love: calculus. This is one of the best introductions to calculus I've seen, primarily because Maor did such a nice job of bring together all the historical footnotes.

The beginning and the end of Maor's story are compelling. He spells out exactly what John Napier put in his original "logarithmic" tables--it turns out that these were logs to the base 1/e, shifted by a factor of 10,000,000, even though their creator wouldn't have put it that way. I was, however, disappointed that no actual *example* is given of a calculation that was made possible by these unusual original tables. Maor tells us how excited Kepler and others were by the possibilities, and hints that computations involving sines were especially aided, but there's not a single example of how the pre-Briggs (log to base 10) logarithm was ever used. (And let me point out that this is not an obvious matter; after extensive googling I have only been able to locate very artificial examples of what Napier's very incomplete tables were good for.)Still, the opening chapters on the "pre-history" of e (before the invention of calculus) are one of the strongest parts of this book. Where Maor gets bogged down is in the long digression telling of the invention of calculus and the bitter priority dispute. In my opinion, there's a solid block of dead weight beginning from the first page of Chapter 8, and Maor doesn't get his steam back until the latter part of Chapter 11 (when we meet the truly "mirabilis" logarithmic spiral).Some of the sidebars are excellent--e.g. the math behind terminal velocity, which makes parachuting possible ("The Parachutist") and the Weber-Fechner law, which claims to give a mathematical model of human response to affective stimuli ("Can Perceptions Be Quantified?").As in his "Trigonometric Delights," Maor excels in presenting the world of complex analysis that was opened up by Leonhard Euler in the 18th century.

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