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Rosenthal, Daniel; Rosenthal, David; Rosenthal, Peter
A readable introduction to real mathematics.
Undergraduate Texts in Mathematics. Cham: Springer (ISBN 978-3-319-05653-1/hbk; 978-3-319-05654-8/ebook). xii, 161 p. (2014).

Book titles like [*S. Axler*, Linear algebra done right. New York, NY: Springer-Verlag (1995; Zbl 0843.15002), Linear algebra done right. 2nd ed. New York, NY: Springer (1997; Zbl 0886.15001); Linear algebra done right. 3rd ed. Cham: Springer (2015; Zbl 1304.15001)] are highly suspicious and deterrent. The same criticism applies to this book entitled "A readable introduction to real mathematics": the decision of whether or not a book is readable can be left only to the reader, not to the authors; moreover, it is highly subjective. Another questionable point is the word "real" in the title: does it mean that the authors treat analysis on the real line, or the book refers to the real number system, or simply that it contains "mathematics that matters"? Even worse, the authors claim that their work "presents sophisticated mathematical ideas in an elementary and friendly fashion". This is really weird: every person with a minimal mathematical background knows that sophisticated results usually require sophisticated methods and hard work and, vice versa, what can be taught in an elementary way is usually not very deep. At this point the reviewer could disregard the book and turn to his usual day work. However, closer scrutiny reveals that the book is not as bad as these superficialities suggest. It is intended as an introductory textbook for fresh (wo)men at various university faculties who want to get in touch for the first time with the art of theorems and proofs, and then perhaps start appreciating mathematics. It covers the following topics: natural numbers, induction, the fundamental theorem of arithmetic, Fermat's little theorem, cryptography, the Euclidean algorithm, rational and irrational numbers, real and complex numbers, cardinality, Euclidean geometry in the plane, construct ability of geometric objects. This summary shows that the authors' aims and scope seems to be sketching some basic principles of a first-year mathematics course, with a particular emphasis on elementary number theory and elementary geometry. The "leitmotiv" which all chapters have in common is to teach the young reader to understand mathematical thinking (or, rather, mathematical reasoning). Although this may be taught by virtually any good textbook in any field and on any level of mathematics, the authors' choice of topics and way to discuss them is quite successful. reasonable, and satisfactory. The reviewer found the exercises at the end of each chapter particularly useful, in particular because the authors did not include solutions. The subdivision into "basic", "interesting", and "challenging" problems is somewhat artificial: sometimes the challenging problems are almost trivial even for beginners. The authors' statement "You [= the reader] may be reading this book on your own or as a text for a course you are enrolled in. Regardless of your reason for reading this book, we hope that you will find it understandable and interesting" in the Preface somewhat calms down the irritation about what the reviewer has written at the beginning. In fact, this (and only this) is the right way to leave the final judgement on the quality of a book to the reader, and it is a pity that the authors did not restrict themselves to such a modest attitude right from the beginning.

Jürgen Appell (Würzburg)