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A guide to plane algebraic curves.
The Dolciani Mathematical Expositions 46; MAA Guides 7. Washington, DC: The Mathematical Association of America (MAA) (ISBN 978-0-88385-353-5/hbk). xv, 193 p. (2011).

As the author says in the preface, "This book was written as a friendly introduction to plane algebraic curves." Indeed, the intended audience is not algebraic geometers, but rather mathematicians of other specialities with a curiosity about the subject, students taking an elementary course in algebraic curves and wanting a companion book "supplying perspective and concrete examples to flesh out abstract concepts," or even non-mathematicians "who have heard that algebraic geometry is useful in attacking an increasingly wide range of applied problems and want an entry point that doesn't require an extensive mathematical background." It is *not* a "theorem, proof, corollary" book. It is certainly a pedagogical challenge to give a clear idea of important aspects of a very technical field without using almost any of the machinery developed by the practitioners of the field. In this book, the author has succeeded admirably. The book is nicely illustrated throughout. In Chapter 1 the author gives a large number of examples of algebraic curves in the real plane, and some examples of curves that are not algebraic. In Chapter 2 he asks the question (which indeed is asked by mathematicians everywhere) "Where are the nice theorems?" Ultimately it seems that the answer from his point of view is "in $\mathbb{P}^2(\mathbb{C})$." In Chapter 2 he produces the real projective plane, adding points at infinity to the real plane. Chapter 3 moves to the complex projective plane $\mathbb{P}^2(\mathbb{C})$, and the notion of intersection multiplicity. After a long and careful discussion, he gives the beautiful theorem of Bézout, together with a discussion of its importance and applications. In Chapter 4 he moves to the topology of algebraic curves in $\mathbb{P}^2(\mathbb{C})$. He discusses connectedness, orientability and genus. In Chapter 5 the author treats singularities and their connection to genus. Chapter 6 describes the connection between irreducible curves in $\mathbb{P}^2(\mathbb{C})$, fields of transcendence degree 1 over $\mathbb{C}$, and compact Riemann surfaces. *Juan C. Migliore (Notre Dame)*

Classification: H75 G65
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