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which in turn lends itself to further theoretical development tuned to computation. This first book in a trilogy is devoted to the new approach. It is a handbook covering the classical theory of finding roots of a univariate polynomial, emphasising computational aspects, especially the representation and manipulation of algebraic numbers, enlarged by more recent representations like the Duval Model and the Thom Codification. Mora aims to show that solving a polynomial equation really means finding algorithms that help one manipulate roots rather than simply computing them; to that end he also surveys algorithms for factorizing univariate polynomials.

## *Géométrie algébrique*

David M. GOLDSCHMIDT. — **Algebraic functions and projective curves.** — Graduate texts in mathematics, vol. 215. — Un vol. relié, 16×24, de xvi, 179 p. — ISBN 0-387-95432-5. — Prix: €44.95. — Springer, New York, 2002.

This book provides a self-contained exposition of the theory of algebraic curves without requiring any of the prerequisites of modern algebraic geometry. The self-contained treatment makes this important and mathematically central subject accessible to non specialists. At the same time, specialists in the field may be interested to discover several unusual topics. Among these are Tate's theory of residues, higher derivatives and Weierstrass points in characteristic  $p$ , the Stohr-Voloch proof of the Riemann hypothesis, and a treatment of inseparable residue field extensions. Although the exposition is based on the theory of function fields in one variable, the book is unusual in that it also covers projective curves, including singularities and a section on plane curves.

Claire VOISIN. — **Hodge theory and complex algebraic geometry, vol. 1.** — Cambridge studies in advanced mathematics, vol. 76. — Un vol. relié, 15,5×23,5, de ix, 322 p. — ISBN 0-521-80260-1. — Prix: £55.00. — Cambridge University Press, Cambridge, 2002.

This first volume provides a modern introduction to Kählerian geometry and Hodge theory. It starts with basic material on complex variables, complex manifolds, holomorphic vector bundles, sheaves, and cohomology theory, the latter being treated in more theoretical way than is usual in geometry, and culminates with the Hodge decomposition theorem. In between, the author proves the Kähler identities, which leads to the hard Lefschetz theorem and the Hodge index theorem. The second part of the book investigates the meaning of these results in several directions. It introduces the notion of Hodge structure, the (logarithmic) de Rham complex, Frölicher spectral sequences, and mixed Hodge structures. The book ends with a treatment of deformations of the complex structure, Gauss-Manin connection, and variations of Hodge structure, on the one hand, and the study of algebraic cycles on the other. These topics will be further developed in the next volume.

## *Anneaux et algèbres*

Ivan CHAJDA, Günther EIGENTHALER, Helmut LÄNGER. — **Congruence classes in universal algebra.** — Research and exposition in mathematics, vol. 26. — Un vol. broché, 17×24, de x, 217 p. — ISBN 3-88538-226-1. — Prix: €28.00. — Heldermann Verlag, Lemgo, Germany, 2003.

Congruence relations play an important role when investigating universal algebras. On the one hand, the structure of the congruence lattice of a given algebra reveals much information on