

The author points out useful relationships between various algorithms. Data structures needed to implement each algorithm are briefly discussed. For the most part, the book avoids worst-case complexity issues, opting instead for brief discussions of the empirical performance of the algorithms. The book is appropriate for an introductory graduate-level course. It contains a good collection of exercises. It is more or less self-contained; however, some knowledge in linear programming would be useful.

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29[68-00, 68Q40].—MARTHA L. ABELL & JAMES P. BRASELTON, *The Mathematica Handbook*, Academic Press, Boston, 1992, xvi+789 pp., 23½ cm. Price: Softcover \$32.50.

Intended as a supplement to the manual for the Macintosh version of the computer system "Mathematica" distributed by Wolfram Research Inc., this handbook is organized alphabetically rather than by topic. Its primary strength is that it provides many simple examples covering some 1500 commands. Virtually every page has one or more Macintosh computer bit-map displays.

Unfortunately, the book is typographically cluttered, the bit-map displays detract from the readability, it has not been carefully proofread, and it does not explain any of the numerous topics that are likely to remain unclear from the manual. I noted particularly inadequate coverage of such confusing subjects as Block, Module, Context, If, Function, and Patterns.

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30[68Q40].—MALCOLM A. H. MACCALLUM & FRANCIS J. WRIGHT, *Algebraic Computing with REDUCE*, Lecture Notes from the First Brazilian School on Computer Algebra, Vol. 1, Clarendon Press, Oxford, 1991, xx+294 pp., 23½ cm. Price \$59.95 hardcover, \$29.95 paperback.

The REDUCE Computer Algebra system has a long history of wide distribution on a variety of computers. Its international community continues to use and improve the program, under the coordination of its original author, A. C. Hearn at the RAND Corp.

This text, which is based on a series of lectures on REDUCE delivered in 1989, targets an audience of persons who need more information than is readily available from the REDUCE manual and the source code for the system.

The authors provide authoritative and substantial additional background, commentary, and examples of usage and programming using REDUCE data types and commands. The authors' concerns range from the mundane (e.g., the differences between the ATARI ST version and other systems) to deep mathematical issues (at least briefly, the algorithms for polynomial factoring and indefinite integration are discussed).