

## REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in brackets are assigned according to the indexing system printed in Volume 28, Number 128, October 1974, pages 1191–1194.

34 [2].—G. GOOS, J. HARTMANIS & K. NICKEL, Editors, *Interval Mathematics*, Lecture Notes in Comput. Sci., Springer-Verlag, Berlin, Heidelberg, New York, 1975, vi + 331 pp., 24 cm. Price \$12.90.

This volume is the proceedings of the International Symposium, Karlsruhe, West Germany, May 20–24, 1975. It contains six invited lectures and 26 contributed papers.  
J. B.

35 [3].—GILBERT STRANG, *Linear Algebra and Its Applications*, Academic Press, New York, 1976, xi + 374 pp., 24 cm. Price \$11.95.

In the preface, Strang says,

“Linear algebra allows and even encourages a very satisfying combination of both elements of mathematics—abstraction and application.” The author provides just such a satisfactory treatment of linear algebra. With exceptional clarity, the basic ideas are developed and supplemented by concrete algebraic and geometric illustrative explanations. If this were all that the author provided, then the book would be outstanding. But, he makes the work a masterpiece by skillfully introducing nontrivial applications and weaving them into his delightful presentation. Of course, the author’s experience in applying numerical methods to a broad spectrum of fields has tempered his judgement. He not only points out the implications of the theorems, but he explains how to choose the numerical methods that will be most efficient. In a trend setting way, the pseudo-inverse and the singular value decomposition of a matrix are carefully developed; the structure of the linear systems that arise in difference methods and in finite element methods are analyzed. The author suggests how the book may be used for four different courses: numerical linear algebra; linear algebra for statistics; linear algebra in economics; basic linear algebra.

Here is a mature work, sprinkled with subtle humor, that will have a profound influence on the teaching of linear algebra.

E. I.

36 [3.05, 3.10, 3.25].—A. BRAMPELLER, R. N. ALLAN & Y. M. HAMAN, *Sparsity*, Pitman, London, 1976, 177 pp., 24 cm. Price £ 7.00, \$15.90.

This is a nice little book (177 pages) written by electrical engineers for electrical engineers. However, it covers many topics in sparsity—network problems, sparse elimination, sparse linear programming, and sparse nonlinear problems—making an excellent (and readable) introduction to these topics, suitable for anyone wanting to know what sparsity is about.

However, I do find it peculiar that a book with a 1976 publishing date has no reference past 1972 (except for a few to the authors’ own work), especially in a field in which so much current work is being produced.

There is only one code presented in the book—and that is a FORTRAN program for calculating the *inverse* of a full matrix! They do state that the inverse of a sparse matrix tends to be full and do not recommend the inversion of sparse matrices. But