particularly useful to analysts of all kinds who need an unconventional inequality at a critical juncture in a proof, to high school and college teachers who want interesting problems for their classes, and to students who wish to practice their analytic skills.

RICHARD BELLMAN

95[X].—JOHN R. RICE, *The Approximation of Functions*, Vol. 1: *Linear Theory*, Addison-Wesley Publishing Company, Inc., Reading, Mass., 1964, x + 203 pp., 24 cm. Price $8.75.

Most of the volume is concerned with the problem of best approximation of a given real function f by a linear combination of given real functions $\phi_1, \phi_2, \cdots, \phi_n$ over a closed interval or over a finite (real) point set. Special cases emphasized are the classical ones of best approximation by polynomials and by trigonometric polynomials, but the more general setting is stressed to a much larger degree than that common in other texts.

The first chapter (entitled Fundamentals) is an introduction to the subject, in which the author seeks to give the reader a feeling for approximation theory and its methods. Also some theorems relating to the foundation of the theory are proved in this chapter.

The second chapter is a brief introduction to the subject of orthogonal systems of functions. The author succeeds in clearly showing the advantages of least-squares approximation from the points of view of ease of computation and simplicity and elegance of theory.

The third chapter deals quite extensively with the theory of best Tchebycheff approximation.

Chapter 4 discusses the problem of best approximation in the L_1 norm.

Chapter 5 (The Weierstrass Theorem and Degree of Convergence) deals mainly with classical results of Weierstrass, Fejér and Jackson, namely, those theorems which (together with Tchebycheff's work) form the classical backbone of approximation theory in the real domain.

The sixth chapter (Computational Methods) gives a survey of methods for the actual construction of best (or merely good) approximations. Two of the methods discussed are the method of descent and linear programming.

The book is rich in problems (of which some serve as exercises and others as an integral part of the text) and in illustrations. It is suitable both as a reference and as a classroom text.

As to the material presented, the book combines classical results with recent ones, including contributions of the author to approximation theory.

It is a highly valuable work that should attract many to study the theory of approximation and to contribute to it.

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96[X].—JAMES SINGER, *Elements of Numerical Analysis*, Academic Press, Inc., New York, 1964, x + 395 pp., 24 cm. Price $8.75.