

This brief pamphlet is a prolegomenon, though not exclusively so, to volume 1 of Schwartz' own two-volume book, and thus it deals only with the general operational aspect of distributions, and not with the more toilsome (and less innovatory) Fourier analysis in open Euclidean space.

Our one criticism of the exposition is this—that Halperin follows Schwartz too closely in claiming the “Dirac function” all-out for the theory of distributions, whereas in fact the Dirac function has been used by other theories of representation of linear functionals to illustrate their points at issue with equal fitness.

But what the pamphlet sets out doing it does very well indeed, and although written compactly, it is readable and informative.

S. BOCHNER

Linear computations. By P. S. Dwyer. New York, Wiley, 1951. 12+344 pp. \$6.00.

The central theme of Professor Dwyer's book is the computational solution of simultaneous linear equations and various allied topics; considerable emphasis is given to effecting these solutions in a practical computational way on a desk calculator. The text contains a wealth of material on this topic and should provide a valuable tool to the young student of applied mathematics who needs to undertake numerous problems within the compass of hand calculation.

The book differs markedly from other texts on classical computational methods in the singleness of its purpose. It is virtually self-contained in that it pre-supposes essentially nothing beyond a knowledge of high school algebra and builds up such theorems on matrices as are needed. Happily the author has not felt a need to sacrifice rigor for clarity.

The text opens with a quite careful and indeed painstaking elementary discussion of computation with approximate numbers and does not leave this topic until the student has received a thorough grounding in the basic notions of his craft. Only then does it proceed to the main theme. Again near the end of the book the author re-emphasizes the approximate character of the subject by a careful discussion of the errors of linear computation.

The next two chapters are devoted to discussions of various exact methods for solution of a system of linear equations, i.e. all problems involving “round-off” are ignored; while the following chapter is concerned with some of the additional problems that arise when “round-off” is no longer ignored.

The principal linear problems discussed are these: solution of equations; inversion of matrices and consideration of the characteristic

equation. In addition to these, as has been mentioned above, there are discussions of error analysis, and finally applications to statistics and non-linear problems.

The young student will find the very numerous and extremely detailed illustrations helpful and he should profit from the carefully selected problems and list of references to the literature.

H. H. GOLDSTINE

Moderna teoria delle funzioni di variabile reale. By G. Vitali and G. Sansone. Part II. *Sviluppi in serie di funzioni ortogonali.* By G. Sansone. (Consiglio Nazionale delle Ricerche. Monografie di Matematica Applicata.) 3d ed. Bologna, Zanichelli, 1952. 7+614 pp. 7000 lire.

The first edition of this treatise was reviewed in vol. 45 (1939) p. 218 and the second edition in vol. 58 (1947) p. 736 of this BULLETIN. The fact that the second edition was exhausted in less than three years is as good a proof of the excellence of the book as could be desired. The new edition is 103 pages longer than the second one. This is partly due to a change of the format and the addition of a number of figures.

Various additions have been made in chapter II: a discussion of the Gibbs phenomenon, bounds for the partial sums of Fourier series of functions of bounded variation, and applications of Fourier series to the stationary state of temperature in an infinite semi-strip and to the isoperimetric problem. A number of additions have been made in chapter IV: expansions in Tchebychef-Laguerre and Tchebychef-Hermite series, discussion of the zeros of Hermite and Laguerre polynomials, their asymptotic behavior for large n , and the applications of these estimates to the expansion problem. In connection with the developments on pp. 357-363 the author might have found some use for the reviewer's paper *Contributions to the theory of Hermitian series* [Duke Math. J. vol. 5 (1939) and Trans. Amer. Math. Soc. vol. 47 (1940)]. The reviewer is gratified to see that the misspelling of the name of Walsh has been corrected. The discussion of convergent sequences of characteristic functions in chapter VI on the Stieltjes integral has been revised. May the author soon have to prepare a fourth edition.

EINAR HILLE

Contributions to the founding of the theory of transfinite numbers. By G. Cantor. Translated, and provided with an introduction and notes, by P. E. B. Jourdain. New York, Dover, n.d. [1952]. 9+211 pp. Paper bound, \$1.25; cloth bound, \$2.75.