Applications of the theory to point sets and function theory are sometimes given as examples to illustrate the matters discussed, but no detailed discussion of point set theory or of function theory is given. This is, of course, not to be expected in so small a book.

There is a short but very interesting discussion of the paradoxes.

It is to be hoped these other topics relating to the subject of this book will be dealt with in other volumes of the series.

T. C. BENTON

Höhere Mathematik für Mathematiker, Physiker, und Ingenieure. By R. Rothe. Part 2. Leipzig and Berlin, B. G. Teubner, 1929. viii+201 pp.

This little volume is the second of a series of three volumes intended to give the principal elementary facts of higher mathematics, for the benefit of mathematicians, physicists, and engineers. The present volume covers the integral calculus, infinite series and a brief treatment of vector analysis. The integration sections discuss formal indefinite integration processes, the definite integral, approximate integration by computation and mechanical means, and the definite integral as a function of a parameter. The infinite series section takes up the principal theory of convergence, a treatment of power series, expansions of special functions, and some applications. The last chapter is devoted to determinants, and the algebra of vectors, with applications to geometry and mechanics, mostly the former. On the whole one gets the impression that the physicist and engineer has had but scant attention in the brief mention of an occasional application to physics and mechanics. For instance, in integration second moments are not mentioned at all, and first moments only incidentally as mean value integrals.

The book has a number of interesting points and formulas. By way of example, there is developed an integration by parts formula of the nth order (suggestive of existence proofs in differential and integral equations); there are derivations of Wallis' product, Stirling's formula, and Euler's constant; determinants are defined by means of an expansion formula in terms of minors, which with the aid of mathematical induction can be (but is not by the author) made the basis for derivation of the principal properties of determinants.

The book makes an attempt and succeeds quite well in maintaining a high standard of rigor. There are occasional slips. For instance, in discussing the method of determining constants in dividing a rational fraction into partial fractions, the impression is given that the method of substitution for the variable is applicable only when the factors of the denominator of the given fractions are distinct; in stating Darboux's theorem on upper and lower integrals one is led to believe that the proof is an immediate consequence of earlier theorems, which it is not; the vector product of two vectors is expressed as a determinant, involving vector quantities, though determinants have been defined only for numbers.

On the whole, the book contains much that is worth while for the embryo mathematician, and presents the material in a very acceptable way.

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