Review
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and exponential functions, integration techniques, improper integrals, Taylor's theorem and real power series—are included. It is assumed that the reader is familiar with elementary calculus and with the elementary geometrical definitions of the trigonometrical functions; precise analytical definitions of these functions are given at a later stage. The authors state as a fundamental axiom the fact that an increasing sequence that is bounded above is convergent. Considerable use is also made of the "Chinese box theorem", which asserts that there is exactly one point in common to all the intervals of a decreasing nested sequence of closed intervals whose lengths tend to zero. The definite integral used is the Riemann integral, defined as the (norm) limit of a sum $\Sigma f(\xi_r)\,\delta x_r$.

Uniform convergence is not included and only functions of a single real variable are discussed. It is in most cases tacitly assumed that functions are real-valued, although occasional reference is made to the complex field. There are numerous exercises to test the student's understanding and his inventive powers. The style is leisurely, well motivated and is enlivened with the occasional joke or witticism. If some fact seems surprising to the authors they have no hesitation in sharing their surprise with the reader and this adds freshness to their style. The printing is excellent and the material is set out spaciously. In acceptance of the invitation given in the footnote on page 3, the reviewer gently draws the authors' attention to the convenient, although admittedly artificial, mathematical distinction between the prepositions *on* and *in*; this is illustrated by the statement that a function that is continuous *on* a closed bounded interval attains its supremum *in* that interval.

R. A. Rankin

**Disquisitiones Arithmeticae.** By Carl Friedrich Gauss. Translated by A. A. Clarke, S.J. Pp. xx, 472. £4. 10s. 1966. (Yale University Press.)

This great work of Gauss, here translated, first appeared, in Latin, in 1801; it was translated into French as early as 1807; and a German version was published in 1889. Two portions, on Congruences of Numbers, and on the Division of a Circle into $n$ Equal Parts, are included, in English, in A Source Book in Mathematics, edited by David Eugene Smith (New York, 1929). But the present book is the first complete English edition, translated from the Latin of the second edition, edited by Schering (1870).

The Theory of Numbers has, of course, made great strides since the days of Gauss, but his work is still of interest. It is often referred to, for instance, in the notes at the end of the chapters in Hardy and Wright "An Introduction to the Theory of Numbers" (Oxford, 1938). And the reader will find many references to the *Disquisitiones* in the useful Report on the Theory of Numbers, by Henry John Stephen Smith, which appeared in the Reports of the British Association, 1859–1865.

The book is in admirable English, and is very well printed and produced.

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