

gruences, the Kloosterman sums and with various aspects of congruences.

Chapter V, *Congruences of the second degree*, contains the standard material on the Legendre and Jacobi symbols as well as the solution of the congruence $x^2 \equiv a \pmod{m}$. Among the unusual problems, one finds many on the sum of various types of Legendre symbols, the Gaussian sum $\sum_{x=1}^m e^{2\pi i ax^2/m}$ as well as other exponential sums.

Chapter VI, *Primitive roots and indices*, is concerned with the determination of all moduli having primitive roots and with the corresponding theory of indices. For such moduli, the congruence $x^n \equiv a \pmod{m}$ is treated. The modulus 2^α , which has no primitive root if $\alpha > 2$, is considered and the essentially unique representation $a \equiv (-1)^{\gamma_5 \gamma_0} \pmod{2^\alpha}$ is obtained when $2 \nmid a$. A large number of the problems deal with characters, character sums, and exponential sums including the Kloosterman sums.

The translation reads smoothly except for a number of exceptions, and the typography is an improvement over the original even though the right-hand margins of the pages have not been rectified. Although the errors mentioned in an insert to the sixth edition have been corrected, a considerable number have been introduced and some others have not been caught. For example, there are a number of places where the numeral 1 has been used in place of the letter *l* (pp. 35, 125, 133). In other places, lower case letters have been used in place of upper case letters (p. 87) or vice versa (p. 34). In at least three places (pp. 128, 128, 214), the sign = is used in place of the correct sign \leq . There are other errors as well. Also, unfortunately, the chapter and paragraph titles have been omitted from the tops of pages. It is to be hoped that the publisher will correct these deficiencies in a subsequent printing.

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Enzyklopädie der mathematischen Wissenschaften. Vol. I, *Algebra und Zahlentheorie*. Part 1: A. *Grundlagen*; B. *Algebra*. 2d ed. Vol. I₁, no. 3, part I: I₁, 6, *Lineare Algebra*; I₁, 7, *Normalformen von Matrizen*. By G. Pickert. Leipzig, Teubner, 1953. 72 pp. 7.50 DM.

The new edition of the *Enzyklopädie*, which was long delayed by the war, seems now to be getting well under way, at least for the first parts, covering foundations, algebra and number theory. While retaining essentially as their goal the same one as the first edition, namely to give as complete as possible a description of the mathematics of their day, the editors have wisely dropped all the historical