

ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THIS SOCIETY

The following papers have been submitted to the Secretary and the Associate Secretaries of the Society for presentation at meetings of the Society. They are numbered serially throughout this volume. Cross-references to them in the reports of the meetings will give the number of this volume, the number of this issue, and the serial number of the abstract.

192. Dr. W. I. Miller: *Fundamental regions for the simple group of order 168 in S_4 .*

Fundamental regions have been determined for certain groups in S_4 (Price, American Journal of Mathematics, vol. 40 (1918), pp. 108–112). In this paper fundamental regions for the ternary G_{168} are obtained by the use of 21 forms of degree four in which every term is of degree two in the variables x_1, x_2, x_3 , and of degree two in the conjugate imaginary variables. These forms are written as the differences of seven positive definite forms, so that their behavior under the group may be studied by means of the permutation group of degree seven. If we set $x_1/x_3 = x + iu$, $x_2/x_3 = y + iv$, each of these forms, equated to zero, represents a hypersurface in S_4 . These hypersurfaces divide the S_4 into 7! regions, each of which has 168 conjugates under the group. A fundamental region is obtained by selecting one region from each of the 30 sets of conjugate regions. Points on the hypersurfaces are also considered. (Received May 15, 1933.)

193. Professor H. S. Vandiver: *On algebraic rings and Abelian groups.*

The methods employed in this article depend on certain representations of the elements of a finite Abelian group (in particular what is called the p -adic representation) which lead also to two possibly new proofs of the existence of a basis for this type of group. Very simple derivations of the known main results and some new results are obtained in the theories of finite fields and rings. (Received May 19, 1933.)

194. Professor L. E. Dickson: *Every large number is a sum of nine values of a cubic polynomial in x .*

The author gives cases of universal theorems described by the title (Received May 4, 1933.)

195. Professor B. A. Bernstein: *A set of four postulates for Boolean algebra in terms of the "implicative" operation.*

The author obtains, as the main object of his paper, a set of four independent postulates for Boolean algebra expressed in terms of the operation