

## ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THE 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.

### ALGEBRA AND THEORY OF NUMBERS

53. A. W. Jones: *The lattice isomorphisms of certain finite groups.*

Let  $G$  be any finite group whose lattice of subgroups is modular. The author gives an explicit procedure for obtaining defining relations for all groups whose lattices are isomorphic to the lattice of  $G$ . Since abelian groups have lattices which are modular, the procedure given includes a characterization, for the finite case, of the groups which are lattice isomorphic to abelian groups (cf. Baer, Amer. J. Math. vol. 61 (1939) pp. 1-44). (Received January 28, 1944.)

54. Oystein Ore: *Galois connexions.*

In numerous mathematical theories there occur order inverting correspondences between two structures  $P$  and  $Q$ ,  $p \rightarrow Q(p)$ ,  $q \rightarrow P(q)$ , such that  $PQ(p) \supseteq p$ ,  $QP(q) \supseteq q$ . The basic properties of such Galois correspondences are derived. They correspond to a duality between structures or closure relations and can also be considered to be mappings of closure relations. They are closely connected with the theory of binary relations as discussed in the author's Colloquium Lectures given in Chicago in 1941. Among the applications should be mentioned a general Galois theory for binary relations, illustrated in detail for the case of equivalence relations. (Received December 7, 1943.)

55. Raphael Salem: *On a remarkable class of algebraic integers. Proof of a conjecture of Vijayaraghavan.*

Let us denote by  $C$  the set of all algebraic integers such that all their conjugates have moduli inferior to 1 ("Pisot-Vijayaraghavan numbers" or briefly "P. V. numbers"). It is proved that the set  $C$  is closed.  $C$  being enumerable it follows that it is (1) nowhere dense; (2) not dense in itself; (3) reducible. There exists a number larger than 1 which is the smallest "P. V. number." (Received December 29, 1943.)

56. P. M. Whitman: *Identities in lattices of equivalence relations. Preliminary report.*

It is shown that free lattices can be represented by equivalence relations. Therefore no lattice identity can hold in every lattice which consists of all equivalence relations on some set, unless it holds in every lattice. (Received December 27, 1943.)