

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

1. A. A. Albert: *A structure theory for Jordan algebras.*

This paper gives the first general structure theory for Jordan algebras, that is, commutative algebras in which the identity $x(yx^2) = (xy)x^2$ holds. Using identities on right multiplications it is shown that every solvable algebra over a field of characteristic not two is nilpotent in the sense that there exists an integer k such that every product of k elements is zero. Also an algebra whose quantities are all nilpotent is necessarily solvable. For algebras over a nonmodular field a trace criterion is developed yielding a decomposition relative to an idempotent, and it is shown that if N is the maximal solvable ideal of A then $A - N$ is a direct sum of simple algebras. Finally, it is shown that every simple Jordan algebra is isomorphic to a Jordan algebra of linear transformations except for a certain class of algebras of order 27 over the center. (Received October 10, 1946.)

2. R. F. Arens: *Representation of rings in which $x^p = x$.*

McCoy and Montgomery, Duke Math. J. vol. 3 (1937), have partially generalized the representation of Boolean algebras of Stone, Trans. Amer. Math. Soc. vol. 40 (1936), by showing that a ring A in which $x^p = x$ and $px = 0$ is a subdirect sum of the corresponding Galois field. In the present paper, the author follows Stone in making this representation sharper and unique, in a certain sense, by considering the locally compact 0-dimensional structure space of A . The case of rings in which $x^{p^n} = x$ is also considered. (Received November 19, 1946.)

3. Reinhold Baer: *Direct decompositions.*

In this paper a comprehensive refinement theorem for direct decompositions of operator loops is proved; and this theorem is shown to contain as special cases the theorems of W. Krull, O. Schmidt, V. Kofinek and A. Kurosh. (Received October 14, 1946.)

4. Reinhold Baer: *Endomorphism rings of operator loops.*

If L is an operator loop, and if A is a commutative and associative admissible subloop of L , then the set θ of all the endomorphisms of L which map L into A is a ring with respect to the customary operations of addition and multiplications. In this note the structure of θ is investigated, mainly under the hypothesis that all the endomorphisms in θ split L . (Received October 7, 1946.)