EQUATIONAL CLASSES ON MODULAR LATTICES

W.B. Vasantha Kandasamy

In this paper we introduce a new identity in lattices. Using this identity we characterize modular lattices, which do not contain a sublattice whose homomorphic image is isomorphic to $M_4$ as follows:

“A modular lattice $L$ does not satisfy the new identity if it contains a nondistributive triple $\{b, c, d\}$ such that $b, c, d$ are the common relative complements of an element ‘$a$’ in some interval of $L$.”

Using this theorem we prove, “A modular lattice $L$ contains a sublattice isomorphic to $M_4$ if and only if $L$ contains a subset of four elements, $(a, b, c, d)$ such that the new identity is not satisfied by this set.”