CONGRUENCES AND BOOLEAN FILTERS
OF QUASIMODULAR $p$-ALGEBRAS

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Abstract

The concept of Boolean filters in $p$-algebras is introduced. Some properties of Boolean filters are studied. It is proved that the class of all Boolean filters $BF(L)$ of a quasi-modular $p$-algebra $L$ is a bounded distributive lattice. The Glivenko congruence $\Phi$ on a $p$-algebra $L$ is defined by $(x, y) \in \Phi$ iff $x^{**} = y^{**}$. Boolean filters $\{F_a\}, a \in B(L)$, generated by the Glivenko congruence classes $F_a$ (where $F_a$ is the congruence class $[a]_\Phi$) are described in a quasi-modular $p$-algebra $L$. We observe that the set $F_B(L) = \{[F_a] : a \in B(L)\}$ is a Boolean algebra on its own. A one-one correspondence between the Boolean filters of a quasi-modular $p$-algebra $L$ and the congruences in $[\Phi, \nabla]$ is established. Also some properties of congruences induced by the Boolean filters $[F_a], a \in B(L)$ are derived. Finally, we consider some properties of congruences with respect to the direct products of Boolean filters.

Keywords: $p$-algebras, quasi-modular $p$-algebras, Boolean filters, direct products, congruences.

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References


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