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THE RINGS WHICH ARE BOOLEAN*

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Abstract

We study unitary rings of characteristic 2 satisfying identity $x^p = x$ for some natural number p. We characterize several infinite families of these rings which are Boolean, i.e., every element is idempotent. For example, it is in the case if $p = 2^n - 2$ or $p = 2^n - 5$ or $p = 2^n + 1$ for a suitable natural number n. Some other (more general) cases are solved for p expressed in the form $2^q + 2m + 1$ or $2^q + 2m$ where q is a natural number and $m \in \{1, 2, \dots, 2^q - 1\}$.

Keywords: Boolean ring, unitary ring, characteristic 2.

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