UDC 512

SOME IDENTITIES ON PRIME NEAR RINGS WITH GENERALIZED DERIVATION

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As a generalization of derivation the notion of generalized derivation in near ring N was introduced by Öznur Gölbasi [2]. An additive mapping $F: N \to N$ is said to be a right generalized (resp., left generalized) derivation with associated derivation d on N if $F(xy) = F(x)y + xd(y)$ (resp., $F(xy) = d(x)y + xF(y)$) for all x, $y \in N$. A mapping $F: N \to N$ is said to be a generalized derivation with associated derivation d on N if F is both a right generalized and a left generalized derivation with associated derivation d on N. The purpose of the present paper is to obtain the commutativity of a prime near ring N with a generalized derivation F associated with a nonzero derivation d satisfying one of the conditions:

(i) $[F(x), y] = \pm y^p(x \circ y)y^q$,
(ii) (ii) $[x, F(y)] = \pm x^p(x \circ y)x^q$,
(iii) (iii) $F(x) \circ y = \pm y^p[x, y]y^q$,
(iv) (iv) $x \circ F(y) = \pm x^p[x, y]x^q$,
(v) (v) $F(x) \circ y = \pm y^p(x \circ y)y^q$,
(vi) $[x, F(y)] = \pm x^p[x, y]x^q$,
(vii) $[F(x), y] = \pm y^p[x, y]y^q$ and
(viii) (viii) $x \circ F(y) = \pm x^p(x \circ y)x^q$ for all $x, y \in N$

and $p \geq 0$, $q \geq 0$ are non-negative integers.

1. *Podlubny I.* Fractional Differential Equations. – Academic Press, San Diego, 1999. – 340 p.
2. *Kushnir R. M. and Yasinskyy A. V.* Optimal Heating Control of Thermosensitive Rectangular Domain Under Restrictions on Stresses in a Plastic Zone // J. of Thermal Stresses. – 2010. – 33, No. 3. – P. 251–261.

ДЕЯКІ СПІВВІДНОШЕННЯ НА ГОЛОВНИХ МАЙЖЕ КІЛЬЦЯХ З УЗАГАЛЬНЕНИМ ДИФЕРЕНЦІЮВАННЯМ