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Mohsen Alipour, Hamzeh Agahi



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New computational techniques for solving nonlinear problems using g -fractional differential operator

Mohsen Alipour^a Hamzeh Agahi^{a*}

^a *Department of Mathematics, Faculty of Basic Science,
Babol Noshirvani University of Technology, Shariati Ave.,
Babol, 47148-71167, Iran*

Abstract

The main interest of this paper is to describe new computational techniques for solving nonlinear problems using g -fractional differential operators. First, we introduce the concept of the g -conformable fractional differential operator on g -semiring. Then, the mean value theorem and Rolle's theorem for g -conformable fractional differential operator are investigated. Moreover, we consider the exact solution of g -fractional differential equations.

Keywords: Pseudo-addition; Pseudo-multiplication; Pseudo-integral; Rolle's theorem; Mean value theorem.

1 Introduction and preliminaries

Non-additive theory is very important in numerous applications in engineering, applied mathematics, economics and statistics [1, 2, 3]. In this paper,

*Corresponding author. e-mail: h_agahi@nit.ac.ir (H. Agahi)

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