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

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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,

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