

An improved Runge-Kutta method for solving fuzzy differential equations under generalized differentiability

ABSTRACT

In this paper, a new Runge-Kutta method be presented which has the fifth order local truncation error with lower function evaluation in comparison with classical one's. Also we use the generalized derivative instead of Seikkala's derivative to illustrate the efficiency of this derivative. The method's applicability is illustrated by solving a linear first order fuzzy differential equation.

Keyword: Fuzzy differential equation; Generalized differentiability; Numerical solution; Runge-Kutta method