

Fuzzy Runge-Kutta Cash-Karp method under the interpretation of Hukuhara derivative

Abstract

These days, researchers are interested in the study of fuzzy differential equations. Modeling can be applied to this fuzzy differential equation to find solutions related with real-world issues. Yet, it is challenging to solve this fuzzy differential equation analytically. Thus, the purpose of this study is to present the fuzzy Runge-Kutta Cash-Karp method to solve first-order fuzzy differential equation under the interpretation of Hukuhara derivative. By applying the fuzzy Runge-Kutta Cash-Karp method, the approximate solution is obtained and compared with the analytical solution. The results indicated that the approximate solutions of the proposed method are comparable to the analytical solutions in terms of accuracy.