Development of Extended Trapezoidal Method for Numerical Solution of Volterra Integro-Differential Equations

Authors : Fuziyah Ishak, Siti Norazura Ahmad

Abstract : Volterra integro-differential equations appear in many models for real life phenomena. Since analytical solutions for this type of differential equations are hard and at times impossible to attain, engineers and scientists resort to numerical solutions that can be made as accurately as possible. Conventionally, numerical methods for ordinary differential equations are adapted to solve Volterra integro-differential equations. In this paper, numerical solution for solving Volterra integro-differential equation using extended trapezoidal method is described. Formulae for the integral and differential parts of the equation are presented. Numerical results show that the extended method is suitable for solving first order Volterra integro-differential equations.