

Convergence of modified homotopy perturbation method for Fredholm-Volterra integro-differential equation of order m

ABSTRACT

In this paper, modified homotopy perturbation method (MHPM) is applied to solve the general Fredholm-Volterra integro-differential equations (FV-IDEs) of order with initial conditions. Selective functions and unknown parameters allowed us to obtain two step iterations. It is found that MHPM is a semi-analytical method for FV-IDEs and could avoid complex computations. Numerical examples are given to show the efficiency and reliability of the method. Proof of the convergence of the proposed method is also given.

Keyword: Integral equation; Homotopy perturbation method; Numerical method