Approximate analytical solutions of nonlinear hyperbolic partial differential equation

ABSTRACT

The Multistep Modified Reduced Differential Transform Method (MMRDTM) is proposed and implemented in this study to obtain solutions of hyperbolic partial differential equations. We examine at the nonlinear Schrodinger equation (NLSE). Prior to implementing the multistep strategy, we switched the nonlinear term in the NLSE with the corresponding Adomian polynomials using the proposed technique. As a result, we can acquire solutions for the NLSE in a simpler and less difficult manner. Furthermore, the solutions can be estimated more precisely over a longer time period. We studied the NLS equation and graphed the features of this solution to show the strength and accurateness of the proposed technique.