

Numerical Solutions for the Korteweg-de Vries Model Equation

By

Kamel Al-Khaled
Department of Mathematics & Statistics
Jordan University of Science and Technology
Irbid 22110 JORDAN

ABSTRACT

A numerical scheme using Sinc-Galerkin method is developed to approximate the solution for the Korteweg-de Vries model equation. Sinc approximation to both derivatives and indefinite integral reduce the integral equation to an explicit system of algebraic equations, then using various properties of Sinc functions, it is shown that the Sinc solution produce an error of order $\mathcal{O}(\exp(-c/h))$ for some positive constants c, h . The method is applied to a few test examples to illustrate the accuracy and the implementation of the method.