Travelling Wave Solutions for the Burgers Equation and the Korteweg-de Vries Equation with Variable Coefficients Using the Generalized (G'/G)-Expansion Method

Elsayed M. E. Zayed and Mahmoud A. M. Abdelaziz

Mathematics Department, Faculty of Science, Zagazig University, Zagazig, Egypt

Reprint requests to E. M. E. Z.; E-mail: e.m.e.zayed@hotmail.com

In this article, a generalized (G'/G)-expansion method is used to find exact travelling wave solutions of the Burgers equation and the Korteweg-de Vries (KdV) equation with variable coefficients. As a result, hyperbolic, trigonometric, and rational function solutions with parameters are obtained. When these parameters are taking special values, the solitary wave solutions are derived from the hyperbolic function solution. It is shown that the proposed method is direct, effective, and can be applied to many other nonlinear evolution equations in mathematical physics.

Key words: Nonlinear Evolution Equations; Generalized (G'/G)-Expansion Method; Hyperbolic Solution; Trigonometric Solution; Rational Solution; Burgers Equation; KdV Equation.