A New Generalized Algebraic Method and its Application in Nonlinear Evolution Equations with Variable Coefficients

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In this paper, a new generalized algebraic method is proposed to construct a series of explicit exact solutions of general nonlinear evolution equations with variable coefficients. Compared with most existing methods, such as the tanh method, the extended tanh method, the Jacobi elliptic function method or the algebraic method, the proposed method seems to be more powerful. The efficiency of the method is demonstrated by applying it to the (1+1)-dimensional variable coefficients modified Korteweg-de Vries (MKdV) equation and the (2+1)-dimensional variable coefficients Kadomtsev-Petviashvili (KP) equation. A rich variety of new exact explicit solutions has been found. — PACS numbers: 03.40.Kf; 03.65.Fd; 02.30Jr.