1023-35-364   **Paul F Bracken*** (`bracken@panam.edu`), 1201 W University Dr, Edinburg, TX 78539. *Some Methods for Generating Explicit Solutions to the Gnerlaized KDV Equation and an Associated Hierarchy.*

The Korteweg-de Vries equation is reviewed and some methods are introduced which can produce solutions with particular properties. The method of symmetry reduction is applied to the generalized Korteweg-de Vries equation and several classes of invariant solutions are obtained. Polynomial, trigonometric and elliptic function solutions can be calculated. It is shown that this generlaized equation can be reduced to a first order equation under a particular second order differential constraint which resembles a Schrödinger equation. It is shown that the compatibility condition derived from a pair of linear equations in two independnet variables leads to a specific class of generalized KDV equation as well as an associated hierarchy of related nonlinear equations. (Received September 08, 2006)