1022-35-75   **Vladimir V Varlamov*** (`varlamov@utpa.edu`), Department of Mathematics, University of Texas Pan American, 1201 W. University Dr., Edinburg, TX 78541-2999. *Fractional derivatives of Airy functions and Korteweg-de Vries-type equations.*

The difficulty of studying the Korteweg-de Vries equation (KdV henceforth) consists in the presence of the derivative in the nonlinearity. Reducing an initial-value problem for KdV to the corresponding integral equation allows one to transfer part of the derivative from the nonlinearity to the fundamental solution of the linear Cauchy problem. The latter may be expressed in terms of the Airy function. This is one of the reasons for investigating fractional derivatives of the Airy function. It is proved that the latter can be represented in the form of products of Airy functions. Therefore their properties and asymptotic expansions become available. Related properties of KdV-type equations are established. (Received September 08, 2006)