1017-35-70   **Vladimir V Varlamov*** (`varlamov@utpa.edu`), Department of Mahtematics, University of Texas - Pan American, 1201 W. University Dr., Edinburg, TX 78541-2999. *Fractional Airy Transform and Korteweg-de Vries-Type Equations.*

A traditional and powerful method of investigating Cauchy problems for nonlinear evolution equations is reducing them to integral equations. A key role in this reduction is played by the fundamental solution of the linear Cauchy problem. Fractional derivatives of the fundamental solution are often used for obtaining various functional estimates. We show that calculation of some of these fractional derivatives may lead to establishing new properties of solutions of both linear and nonlinear problems. As a main example we take the Korteweg-de Vries equation and its generalized version. (Received February 12, 2006)