In this talk, we mainly consider the approximate solutions to the Korteweg-de Vries-Burgers equation. We provide a connection between the Abel equation of the first kind, an ordinary differential equation that is cubic in the unknown function, and the Korteweg-de Vries-Burgers equation, a partial differential equation that describes the propagation of waves on liquid-filled elastic tubes. We present an integral form of the Abel equation with the initial condition. By virtue of the integral form and the Banach Contraction Mapping Principle we derive the asymptotic expansion of bounded solutions in the Banach space, and use the asymptotic formula to construct approximate solutions to the Korteweg-de Vries-Burgers equation.