Richard N. Barshinger* (rxb10@psu.edu), Penn State–Scranton, 120 Ridge View Drive, Dunmore, PA 18512. Solving the Linear Drag Flight Equation Analytically.

The time-of-flight for ground-to-ground vertical motion with linear drag is the nonzero root of $0 = -2at + (1 + a)(1 - \exp(-2at))$, where $a =$drag coefficient $x$ initial velocity/gravity constant, and “$t$” is a non-dimensional scaled time variable. Though typically solved numerically, we show how to obtain a convergent series solution in the guage functions $a^n/(1 + a)^{n + 1})$. (Received October 01, 2004)