1051-34-24        **Archie Wilmer*** (`Archie.Wilmer@usma.edu`), 274A Bowman Loop, West Point, NY 10996.
*Connecting constant and variable coefficient differential equations.*

Use of the differential operator is extended to obtain analytic solutions for certain classes of second-order linear differential equations with variable coefficients. The approach includes the use of repeated iterated integration and represents a different way to acquire an analytic solution compared to classic power series techniques and other approaches. It is, at times, more involved than traditional methods. This approach underscores a connection between the analysis of constant and variable coefficient differential equations. (Received July 16, 2009)