1056-Z1-542 **Doreen De Leon*** (doreendl@csufresno.edu), Department of Mathematics, California State University, Fresno, 5245 North Backer Ave., M/S PB108, Fresno, CA 93740. *Euler-Cauchy Using Undetermined Coefficients.*

The Euler-Cauchy equation is often one of the first higher order differential equations with variable coefficients introduced in an undergraduate differential equations course. Putting a nonhomogeneous Euler-Cauchy equation on an exam in such a course, I was surprised when some of my students decided to apply the method of undetermined coefficients, which is guaranteed to work only for constant-coefficient equations, and obtained the correct answer! It turns out that we can find a particular solution to this equation using a substitution similar to the standard method of undetermined coefficients, if the right-hand side function is of a certain type, without using variation of parameters or transforming the equation to a constant-coefficient equation and then applying undetermined coefficients. (Received September 11, 2009)