

Shepley L. Ross *Introduction to Ordinary Differential
Equations*

Chapter 4. Explicit Methods of Solving Higher-Order Linear
Differential Equations

4.4. Variation of Parameters

4.4.1. Find the general solution of $y'' + y = \cot x$.

4.4.3. Find the general solution of $y'' + y = \sec x$.

4.4.9. Find the general solution of $y'' + 6y' + 9y = e^{-3x}/x^3$.

4.4.13. Find the general solution of $y'' + 3y' + 2y = \frac{1}{1 + e^x}$.

4.4.17. Find the general solution of $y'' + 3y' + 2y = e^x/x$. HINT: The solution involves an integral that cannot be put in closed form.

4.4.25. Find the general solution of $(\sin^2 x)y'' - (2 \sin x \cos x)y' + (\cos^2 x + 1)y = \sin^3 x$, given that $y = \sin x$ and $y = x \sin x$ are linearly independent solutions of the corresponding homogeneous equation.