Shepley L. Ross *Introduction to Ordinary Differential Equations*

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

4.3. The Method of Undetermined Coefficients

4.3.1. Find the general solution of the DE: $y'' - 3y' + 2y = 4x^2$.

4.3.3. Find the general solution of the DE: $y'' + 2y' + 5y = 6 \sin 2x + 7 \cos 2x$.

4.3.7. Find the general solution of the DE: $y'' + 6y' + 5y = 2e^x + 10e^{5x}$.

4.3.15. Find the general solution of the DE: $y''' + 4y'' + y' - 6y = -18x^2 + 1$.

4.3.23. Find the general solution of the DE: $y''' - 3y'' + 4y = 4e^x - 18e^{-x}$. HINT: $m = -1$ is a zero of the auxiliary equation.

4.3.31. Find the general solution of the DE: $y'' + y = x \sin x$.

4.3.35. Solve the initial value problem: $y'' - 4y' + 3y = 9x^2 + 4$, $y(0) = 6$, $y'(0) = 8$.

4.3.39. Solve the initial value problem: $y'' + 8y' + 16y = 8e^{-2x}$, $y(0) = 2$, $y'(0) = 0$.

4.3.41. Solve the initial value problem: $y'' + 4y' + 13y = 18e^{-2x}$, $y(0) = 0$, $y'(0) = 4$.

4.3.51. Consider $y'' - 6y' + 8y = x^3 + x + e^{-2x}$. Set up the correct linear combination of functions with undetermined coefficients to use in finding a particular integral y_p by the Method of Undetermined Coefficients.