

Introduction to Differential Equations
Assignment # 6

Date Given: May 16, 2022

Date Due: May 23, 2022

- P1.** (1 point) Use the method of undetermined coefficients to find the general solution of the differential equation $y'' - 2y' + 5y = e^{2t}(\cos t - 3 \sin t)$.
- P2.** (1 point) Use the method of undetermined coefficients to find the general solution of the differential equation $y'' + 2y' + y = \cos t + 3 \sin 2t$.
- P3.** (2 points) Find the solution of the initial value problem $y'' - 2y' - 3y = 3te^{2t}$, $y(0) = 1$, $y'(0) = 0$.
- P4.** (2 points) Find the solution of the initial value problem $y'' + 2y' + 5y = 4e^{-t} \cos 2t$, $y(0) = 1$, $y'(0) = 0$.
- P5.** (2 points) Use the method of variation of parameters to find the general solution of the differential equation $y'' - 2y' + y = e^t/(1 + t^2)$.
- P6.** (2 points) Use the method of variation of parameters to find the general solution of the differential equation $y'' + 2y' + y = e^{-t} \ln t$.