Introduction to Differential Equations
Assignment # 8

Date Given: May 30, 2022
Date Due: June 6, 2022

P1. (1 point) Use the method of undetermined coefficients to find the general solution of the differential equation $y''' - 6y'' = 3 - \cos t$.

P2. (1 point) Use the method of undetermined coefficients to find the general solution of the differential equation $y''' - 3y'' + 3y' - y = t - 4e^t$.

P3. (1 point) Use the method of undetermined coefficients to find the general solution of the differential equation $y^{(4)} - y'' = 4t + 2te^{-t}$.

P4. (2 points) Use the method of undetermined coefficients to find the general solution of the differential equation $y''' + 4y' = t$, $y(0) = 0$, $y'(0) = 0$, $y''(1) = 0$. Then plot a graph of the solution.

P5. (2 points) Use the method of variation of parameters to find the general solution of the differential equation $y''' - 3y'' + 2y' = \frac{e^{2t}}{1+e^t}$.

P6. (2 points) Use the method of variation of parameters to determine the general solution of the differential equation $y''' + y' = \sec t$, $-\pi/2 < t < \pi/2$.