Section 2.7
(B)

Let

\[ f(t, y) = ty \]

Starting with \( y(1) = 1 \) compute approximations of \( y(2) \), \( y(3) \), and \( y(4) \) using Euler’s Method with a time difference \( = 1 \). You should do this by hand.

(This is not a good approximation but it serves to simplify the problem.)

Section 3.5
(C)

Just write down the appropriate guesses for the particular solutions \( Y_i \) for the method of undetermined coefficients. You should break up the guesses into guesses for \((t + 1)e^{-t}\), \((t + 1)e^t\), and for \(e^t sin(t)\). Make sure to write down to which of these each guess applies. DO NOT solve the problems and DO NOT solve for the coefficients in the guess.

(i) \( y'' - 2y' + y = (t + 1)e^{-t} + (t + 1)e^t + e^t sin(t) \)
(ii) \( y'' - y = (t + 1)e^{-t} + (t + 1)e^t + e^t sin(t) \)
(iii) \( y'' - y' - 2y = (t + 1)e^{-t} + (t + 1)e^t + e^t sin(t) \)
(iv) \( y'' - 2y' + 2y = (t + 1)e^{-t} + (t + 1)e^t + e^t sin(t) \)