

For full credit, you must show all work and circle your final answer.

1a. (2 points) Write the form of the particular solutions.

(a) $y'' - y = e^{2t} \sin(t)$.

(b) $y'' - 2y' + y = (8t + 1)e^t$.

1b. (1 point) Calculate the Wronskian of the two functions below and determine if they are linearly independent over the interval $(0, \infty)$.

$$y_1(x) = e^{2x}, \quad y_2(x) = e^{-3x}$$

2 (2 points) Use the method of variation of parameters to find a particular solution for

$$ty'' - (t + 1)y' + y = t^2,$$

given the homogeneous solutions

$$y_1(t) = e^t \quad y_2(t) = t + 1.$$

University of Florida Honor Code:

On my honor, I have neither given nor received unauthorized aid in doing this assignment.

Signature