

Instructor: Leopoldo P. Franca

NAME: _____

TEST # 2:

Please show all your work in the test. Guessed answers are NOT acceptable. You may use calculators. Good luck!

(40 pt) 1) Find general solutions of the following differential equations:

a) $y'' - 4y = 0$

b) $y'' - 2y' + y = 0$

c) $y^{(4)} - 2y'' + y = 0$

d) $y''' - y' = 0$

(20 pt) 2) Find a general solution to $y'' - 7y' + 10y = 0$, and the solution for which $y(0) = 1$ and $y'(0) = 5$.

(20 pt) 3) Find a general solution to $y'' - 4y' + 4y = 4x^2$, using the method of undetermined coefficients.

(20 pt) 4) Solve by variation of parameters the nonhomogeneous equation

$$y'' - y' + \frac{1}{4}y = 16xe^{x/2}$$