

Instructor: Leopoldo P. Franca

NAME: \_\_\_\_\_

**TEST # 1:**

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

(25 pt) 1) Solve  $2xy^2 dx - (x^2 + 1) dy = 0$ ,  $y(0) = 2$ .

(25 pt) 2) Solve  $\frac{dy}{dx} - 2y = 2e^{2x} \cos(2x)$ ,  $y(0) = 0$ .

(25 pt) 3) Solve  $y \cos(xy) dx + (x \cos(xy) + y) dy = 0$ ,  $y(0) = 2$ .

(25 pt) 4) Suppose that mold grows at a rate proportional to the amount present. If there are initially 500 grams of mold and six hours later there are 600 grams, determine the amount of mold present after one day. When is the amount of mold 1000 grams?