

MATH 231. QUIZ 2

Name: _____

Instructions: Read each problem carefully. You must show your work on solving ODE.

Problem 1 (10 points): Solve the initial value problem:

$$\frac{dy}{dx} - \frac{3y}{x} = x^3 \sin(x), \quad y(1) = 2 - \cos(1).$$

Problem 2 (10 points): Show the following equation is exact and then solve it.

$$(2x + y^2) + (2xy + y^3) \frac{dy}{dx} = 0.$$