King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math 202-16 Quiz #1
Name:.....ID:.....

Exercise 1 *Consider the differential equation*

$$m\frac{d^3y}{dx^3} + 2\frac{d^2y}{dx^2} - 7y = \sin(x)$$

Discuss according to the value of the parameter m the order of the differential equation.

Exercise 2 *Consider the differential equation*

$$\frac{d^2y}{dx^2} + \cos(y) = 0$$

Classify the differential equation according to type, order and whether it is linear or nonlinear.

Exercise 3 *Find all the regions over which the differential equation*

$$(x-1)\frac{dy}{dx} = y(3-y)$$

has a unique solution. Draw the region(s).