MTH 330 **Quiz #1** February 6, 2020

NAME: _____

1. Classify and then find the general solution to the following ODE:

$$y' = -2y + 2xe^{-2x}$$

2. Classify and then find the general solution to the following ODE. Then solve the initial value problem: $y(0) = 2$

$$y' = \frac{\mathrm{e}^{x}}{1 + \mathrm{e}^{-y}}$$

3. Show that the following ODE is *exact*, then find the general solution.

$$\left(2xy^2 + 1\right) + 2x^2 y \frac{dy}{dx} = 0$$

MTH 330 **Quiz #1** February 6, 2020

NAME: _____

1. Classify and then find the general solution to the following ODE. Then solve the initial value problem: $y(0) = 2$

$$y' = \frac{\mathrm{e}^{-x}}{1 + \mathrm{e}^{y}}$$

2. Classify and then find the general solution to the following ODE:

$$y' = 5y + 2xe^{5x}$$

3. Show that the following ODE is *exact*, then find the general solution.

$$\left(3x^2y^3\right) + \left(3x^3y^2 + 1\right)\frac{dy}{dx} = 0$$

MTH 330 **Quiz #1** February 6, 2020

NAME: _____

1. Classify and then find the general solution to the following ODE. Then solve the initial value problem: $y(\pi) = 4$

$$y' = \frac{\cos x}{y + \cos y}$$

2. Classify and then find the general solution to the following ODE:

$$y' = 3y + 2xe^{3x}$$

3. Show that the following ODE is *exact*, then find the general solution.

$$\left(4x^3y^4 + 2x\right) + \left(4x^4y^3\right)\frac{dy}{dx} = 0$$

MTH 330 **Quiz #1** February 7, 2020

NAME: _____

1. Classify and then find the general solution to the following ODE. Then solve the initial value problem: $y(\pi) = 4$

$$y' = \frac{-\sin x}{y + \sin y}$$

2. Classify and then find the general solution to the following ODE:

$$y' = -8y + 2xe^{-8x}$$

3. Show that the following ODE is *exact*, then find the general solution.

$$\left(4x^3y^4\right) + \left(4x^4y^3 + 2y\right)\frac{dy}{dx} = 0$$