Quiz 5

MATH 2280, ORDINARY DIFFERENTIAL EQUATIONS, FALL 2023

NAME: A#:

Problem 1. Chapter 6.6 (10 points) Use a substitution appropriate to a Bernoulli equation to solve the following initial value problem.

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

Solution:

Problem 2. Section 6.1b (10 points) The following differential equation is in exact form. Find the corresponding potential function and then find a general solution to the differential equation using that potential function (even if it can be solved by simpler means).

$$4\,x^3\,y + [x^4 - y^4]\,\frac{dy}{dx} = 0$$

Solution: