Practice Quiz 2

MATH 2280, ORDINARY DIFFERENTIAL EQUATIONS, SPRING 2024

NAME: A#:

Problem 1. Exercise 2.4c (10 points) Solve the initial-value problem (using the indefinite inegral). Also, state the largest interval over which the the solution is valid (i.e., the maximal possible interval of interest).

$$\frac{dy}{dx} = \frac{x-1}{x+1}$$

with $y(0) = 8$.

Solution:

Problem 2. Exercise 2.7f (10 points) Using definite integrals (as in Example 2.5 on page 25) find the solution of the following iitial-value problem. (In some cases, you may want to use the error function or the sine-integral function.)

$$x \, \frac{dy}{dx} = \sin(x^2)$$

with $y(0) = 0$.

Solution: