

Practice Quiz 1

MATH 2280, ORDINARY DIFFERENTIAL EQUATIONS, SPRING 2024

NAME:

A#:

Problem 1. Exercise 1.3e (10 points) For each differential equation given three choices for a possible solution $y = y(x)$ are given. Determine whether each choice is or is not a solution to the given differential equation. (In each case, assume the interval of interest is the entire real line $(-\infty, \infty)$)

$$x \frac{dy}{dx} - 2y = 6x^4$$

i.) $y(x) = x^4$ ii.) $y(x) = 3x^4$ iii.) $y(x) = 3x^4 + 5x^2$

Solution:

Problem 2. Exercise 2.3g (10 points) Find a general solution for the following directly integrable equations. Use an indefinite integral to compute the solution.

$$x = (x^2 - 9) \frac{dy}{dx}$$

Solution: