

Math 202-Section 2 Quiz 1

Sr. Num.: ID. Num.: Name:

Q A: Consider the first order ordinary differential equation:

$$dy + 2xy^2 dx = 0.$$

(1) Show that $y = \frac{1}{x^2+c}$ is a one-parameter solution of the differential equation. [3 points]

- (2)
- Use part (1) to find the solution that satisfies the initial condition $y(0) = -1$, [1 point].
 - What is the interval of definition for this solution, [2 points].

Q B:[4 points] Use the separation method to find the general solution of the ordinary differential equation:

$$ye^x \frac{dy}{dx} = e^{-y} + e^{-2x-y}.$$