Practice Quiz 6 Math 2280, Ordinary Differential Equations, Spring 2024

Name: A#:

Problem 1. Exercise 13.2e (10 points) For the following, determine if the given equation contains y. If it does not, solve it using the substitution $v = y'$ as described in Section 3.1.

$$x\, y'' - y' = 6\, x^5$$

Solution:

Problem 2. Exercise 13.5c (10 points) For the following, determine if the given differential equation is autonomous. If it is, then solve it using the substitution $v = y'$ as described in Section 3.2.

$$y' \, y'' = 1$$

Recall: $\frac{d^2y}{dx^2} = v \, \frac{dv}{dy}$.

Solution: