

Math 3413.001: Physical Mathematics I

Homework 3, due February 6 (Thursday)

Lecture 5 (Jan 28) - Due date 02/06/2020 : Section 1.6

1. Determine if the differential equation $x^2y' = y(x + y)$ is homogeneous or Bernoulli or both. Give a solution using any method that applies.
2. Solve the differential equation $y' = 2x(y + y^2)$ using the method of Bernoulli equation. Also give a solution for the same differential equation using the method of separable DE.
3. Consider the differential equation $y'' = (y')^2$. It is has both x and y variable missing. Give solutions to the DE using the two different methods corresponding to x -variable missing, and y -variable missing.

Suggested problems from the book (DO NOT SUBMIT): Pg 69-71, #2, 5, 20, 27, 48, 54