

Worksheet 7

Spring 2016

MATH 222, Week 7: 3.3, 3.5, 3.7, 3.8, 3.10

Name: _____

You aren't necessarily expected to finish the entire worksheet in discussion. There are a lot of problems to supplement your homework and general problem bank for studying.

Problem 1. Find the general solution to the initial value problem:

$$\frac{dy}{dx} = \frac{1}{e^y \sqrt{1-x^2}}$$

Problem 2. Find a solution to the initial value problem:

$$\frac{dy}{dx} = \sqrt{1-y^2} \sec^2(x)$$

With initial value $y(0) = 0$.

Problem 3. Find a solution to the initial value problem:

$$\frac{dy}{dx} = (1+y^2)e^x$$

With initial value $y(0) = 0$.

Problem 4. Find the general solution to the differential equation (for $x \neq 0$):

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

Problem 5. Find the general solution to the differential equation

$$\frac{1}{2x} \frac{dy}{dx} = y + e^{x^2}$$

Problem 6. Find a solution to the initial value problem

$$\cos(x) \frac{dy}{dx} = 1 - \sin(x)y$$

With initial value $y(0) = 1$.