

MATH 221 - DIFFERENTIAL EQUATIONS

LECTURE 9 ACTIVITIES

Fall 2020

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§A. In-class Practice Problems

■ Question 1.

Make sure to complete Lecture 8 activity questions. I will ask for the pictures on Wednesday.

■ Question 2.

A 1000-gallon tank initially contains a mixture of 450 gallons of cola and 50 gallons of cherry syrup. Cola is added at the rate of 8 gallons per minute, and cherry syrup is added at the rate of 2 gallons per minute. At the same time, a well mixed solution of cherry cola is withdrawn at the rate of 5 gallons per minute. What percentage of the mixture is cherry syrup when the tank is full?

INSTRUCTIONS: Set up a first order initial value problem and find the solution. At what time is the tank going to be full? You do not need a calculator for this problem, all numbers will be rationals or integers.