

Pop Quiz

Ordinary Differential Equations

UCR Math-046-E01, Summer 2018

1. With the initial conditions that $y(0) = 0$, $y'(0) = 7$, and $y''(0) = 20$, find the particular solution to the differential equation

$$y''' - 4y'' + 4y' = 0.$$

There is another question on the back.

2. A 50 gallon tank initially contains 10 gallons of salt-water with a total of 10 lbs of salt dissolved in it. At $t = 0$ a salt-water solution containing 1 lb of salt per gallon is poured into the tank at a rate of 4 gal/min, while the well-stirred mixture leaves the tank at a rate of 2 gal/min. How much salt is in the tank at the moment that it overflows?