Week 9 MATH 34B

TA: Jerry Luo

jerryluo8@math.ucsb.edu

Website: math.ucsb.edu/~jerryluo8

Office Hours: Wednesdays 2-3PM South Hall 6431X Math Lab hours: Wednesday 3-5PM, South Hall 1607

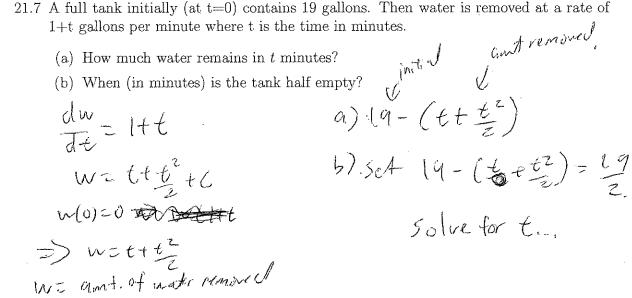
21.2 Use two steps of Euler's method (ie. $\Delta t = 0.2$) for the equation y' = y - t with initial condition y(0) = 1 to find y(0.4).

$$y_2 = y_1 + \Delta t F(t_1, y_1) = 1.2 + 0.2(1.2 - 0.2)$$

21.3 Use Euler's method to find y(0.4) if $y' = 1 - y^2$ and y(0) = 0.5, with a time step of 0.1.

$$y_1 = 0.5 + 0.1(1-0.5^2) = 0.575$$

$$y_3 = 0.6419375 + 0.1(1-0.6419375) = 0.700729125$$



23.2 The number of items sold at a price of x dollars per item is 2000-300x. It costs 9 dollars to make the item. What price should be charged to make the most profit?

Prevenue = price
$$iq_{conthet} = q_{i} \times (2000-300x)$$

 $expanse; specie = quantity = (price tomater) = 9(2000-300x)$.
 $p = profit = rev - expanse = x(2000-300x) - 9(2000-300x)$
 $p'(x) = (2000-300x) \cdot 1 + x(-300) - [9(-300)]$
 $Set = 20, Solve - -$

23.? In 1990 a fatal disease evolves to which 40 percent of a population of 5 million trees is susceptible. The proportion of susceptible trees which survive for a period of t years beyond 1990 is e^{-t} . How quickly is the disease killing off trees at the start of 1992? When will the population be reduced to 80 percent of the level in 1990?

b). 80% => 4 million, so, set 3+ 2e- = 4, solvefor E...