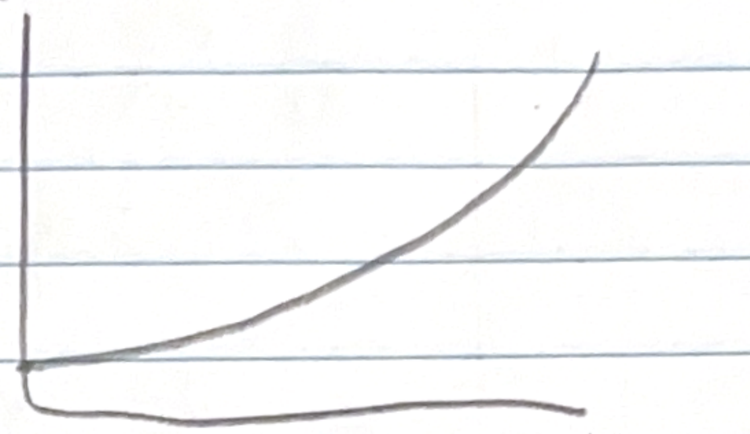
Euler's Practice

IC: initial conditions

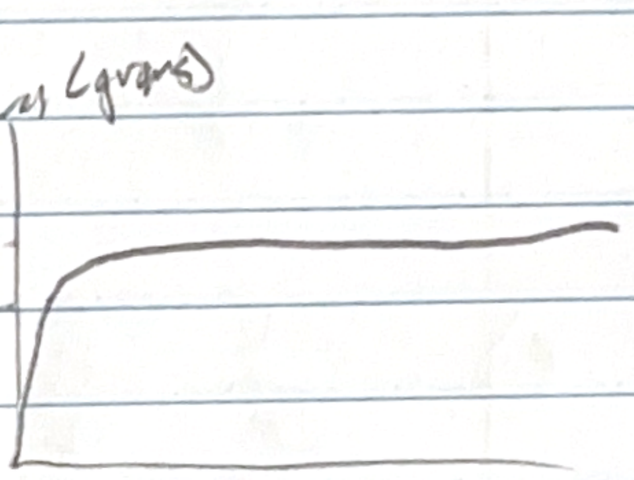
1 $\frac{dM}{dt} = .1M + 1000$ IC: (0, 1000)

at 20 yrs later: $64,002



2 $\frac{dL}{dt} = 3 - .75L$ IC: (0, 0)

after 10 yrs: 4 grams



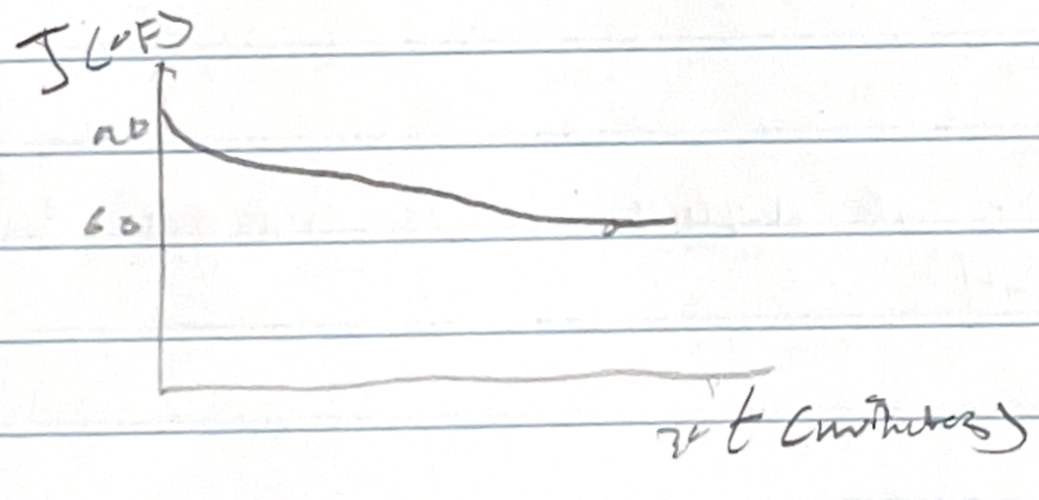
3 $\frac{dJ}{dt} = -.05(J - S)$ °F

J: juice temp, S: stream temp

IC: t: 0, J: 90, S: 50

J: 60 when?

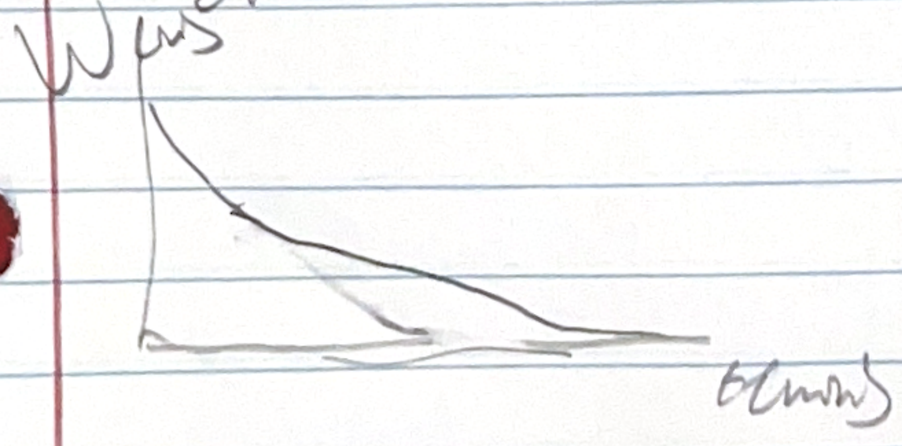
t: 27-28 minutes



4 $\frac{dw}{dt} = -.20\sqrt{w}$ w: water level

IC: (0, 36)

w: 0 @ t: 57-58 minutes



S $\frac{dP}{dt} = .00017 P(187 - P)$ IC: (0, 39)

@ $t = 194 - 1790 = 150$ yrs, $P = 133$ million

P