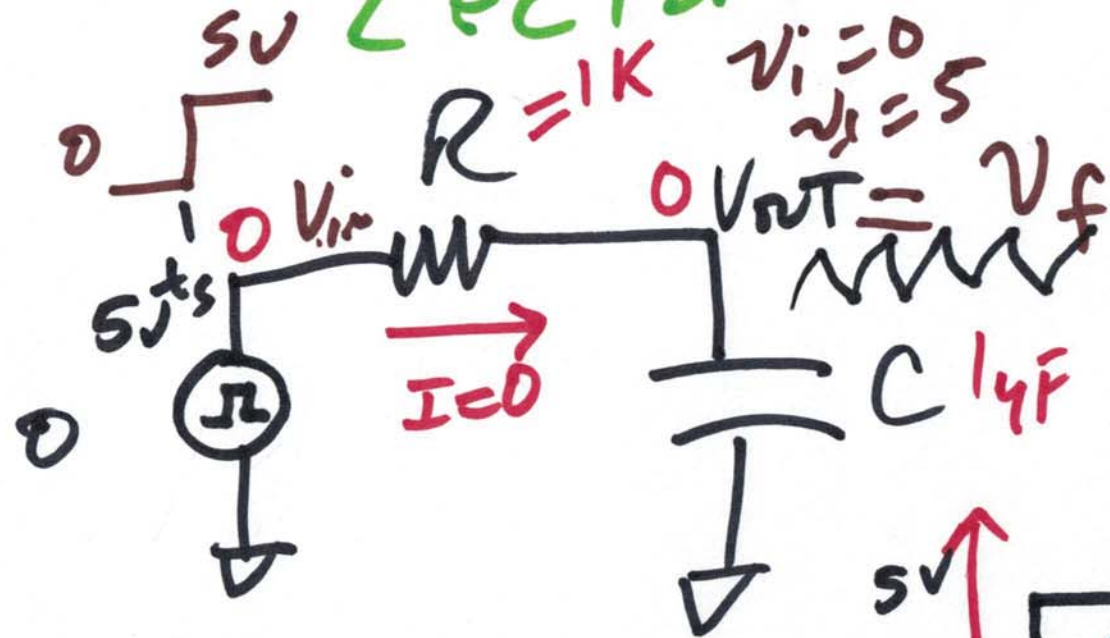


EE 220 circuits 1

OCT. 29, 2018

Lecture 18

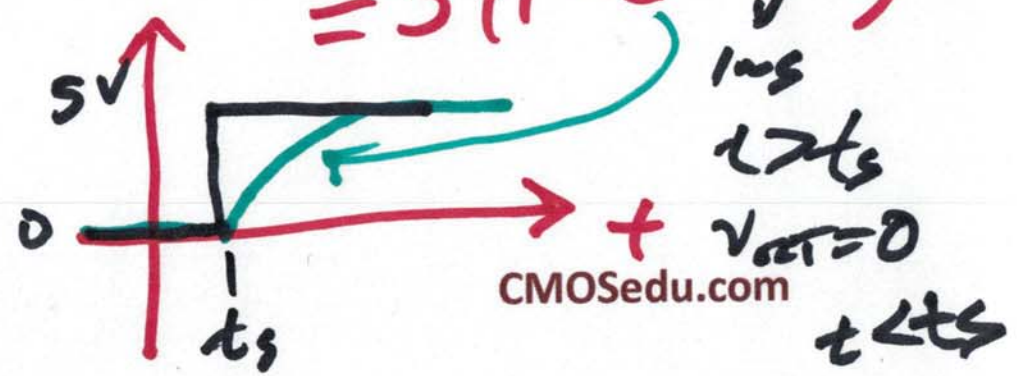
$$\tau = RC = 1\mu s$$



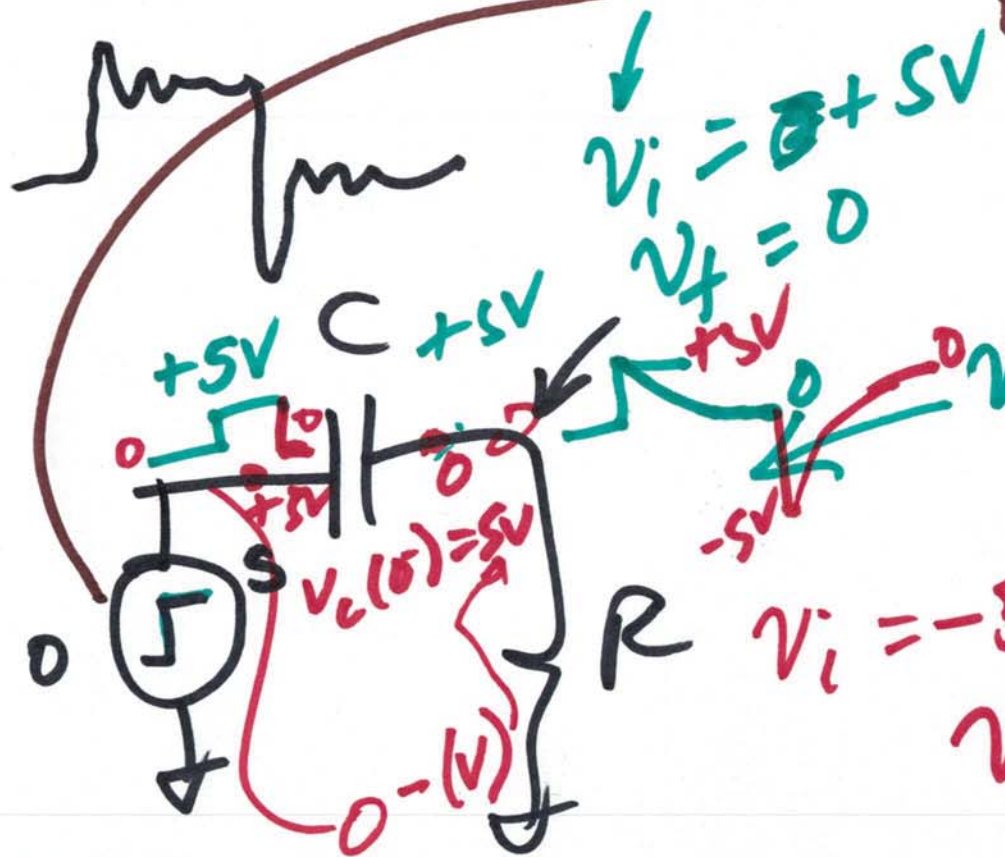
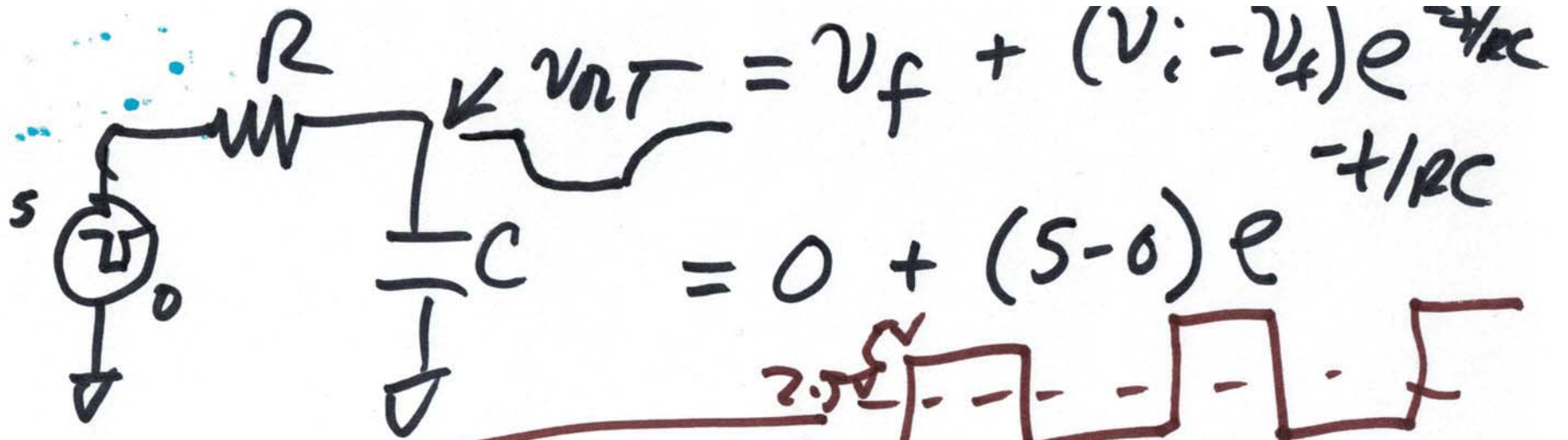
$$v_f + (v_i - v_f)e^{-t/\tau}$$

$$= 5 + (0 - 5)e^{-t/\tau}$$

$$= 5(1 - e^{-t/\tau})$$



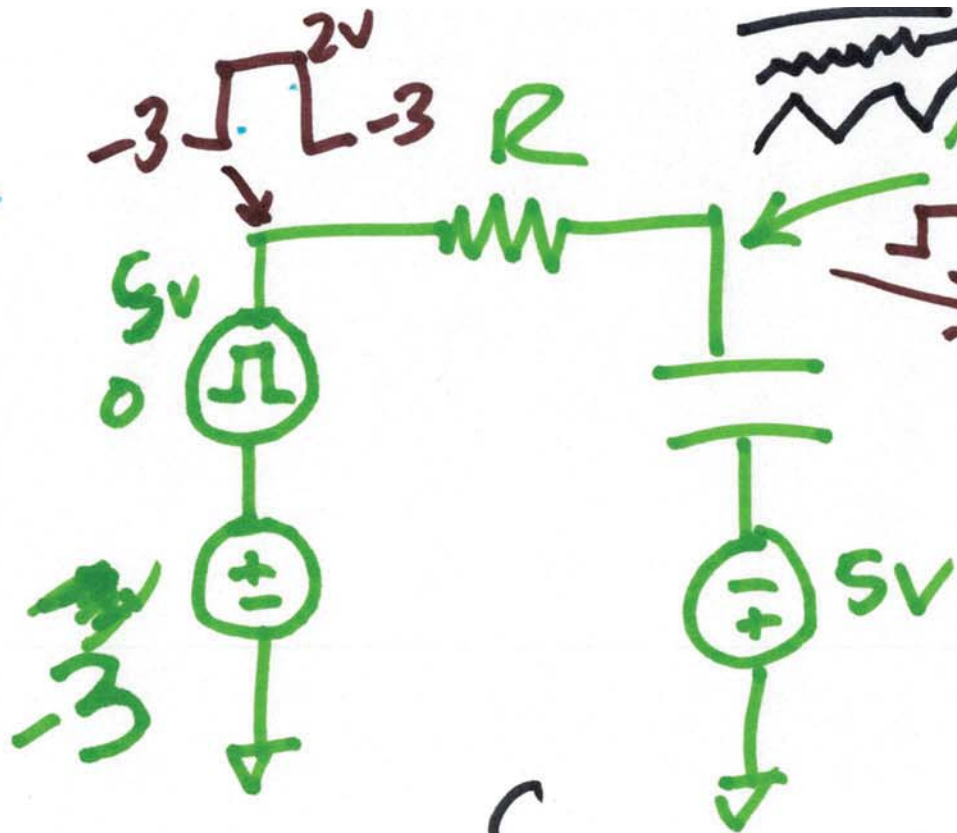
1)



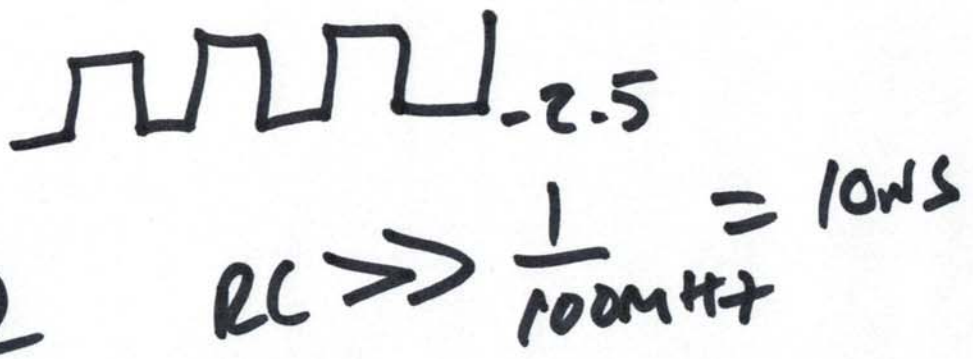
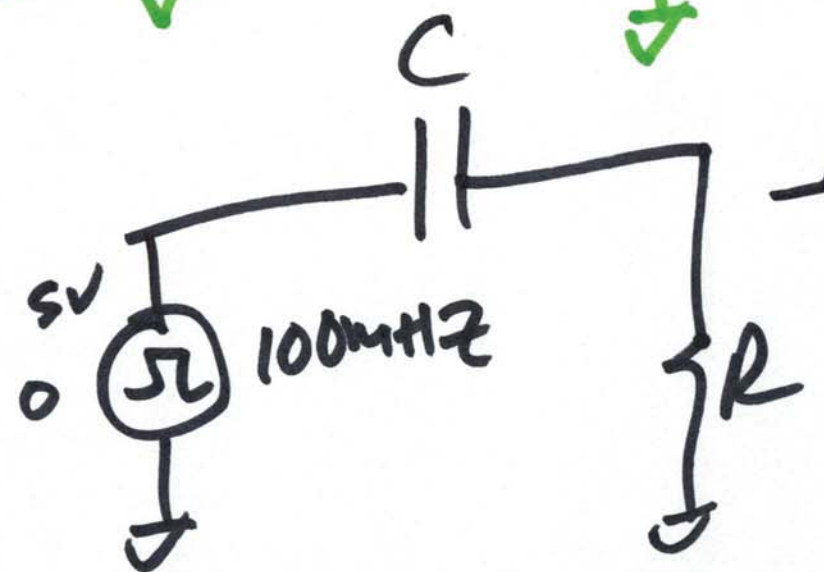
$V_{PP} = \text{peak-to-peak } v = 5V$
 $DC \text{ offset } = 2.5V - t/RC$

$v_{out} = 0 + (5-0)e^{-t/RC} = 5e^{-t/RC}$
 $v_{out} = 0 + (5-0)e^{-t/RC} = -5e^{-t/RC}$

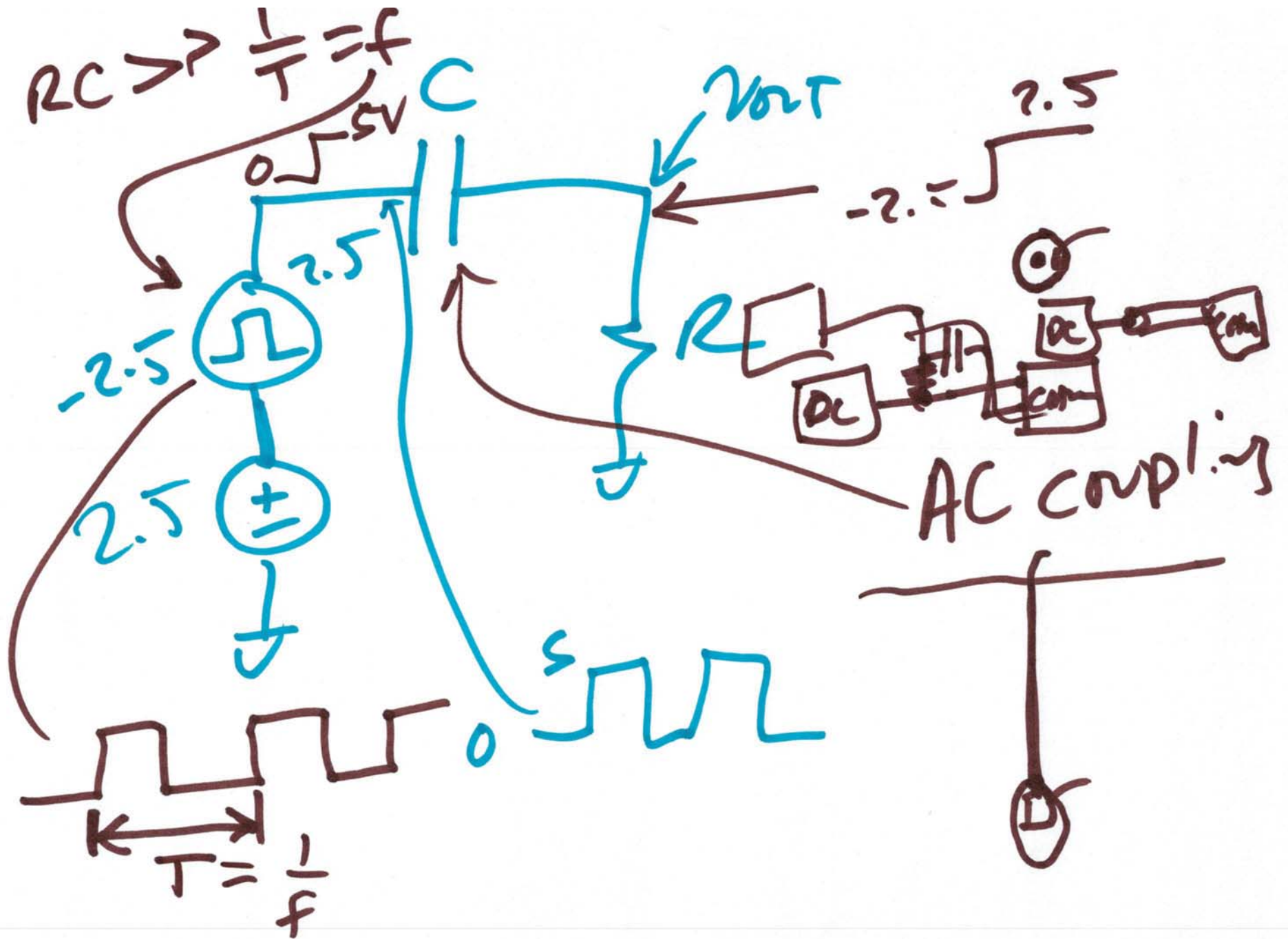
2)



$v_{out} = ?$
 v_f v_i v_f
 $-3 = v_i$, $v_x = +2$
 $v_{out} = 2 + (-3 - 2)e^{-t/RC}$
 $= 2 - 5e^{-t/RC}$



3)



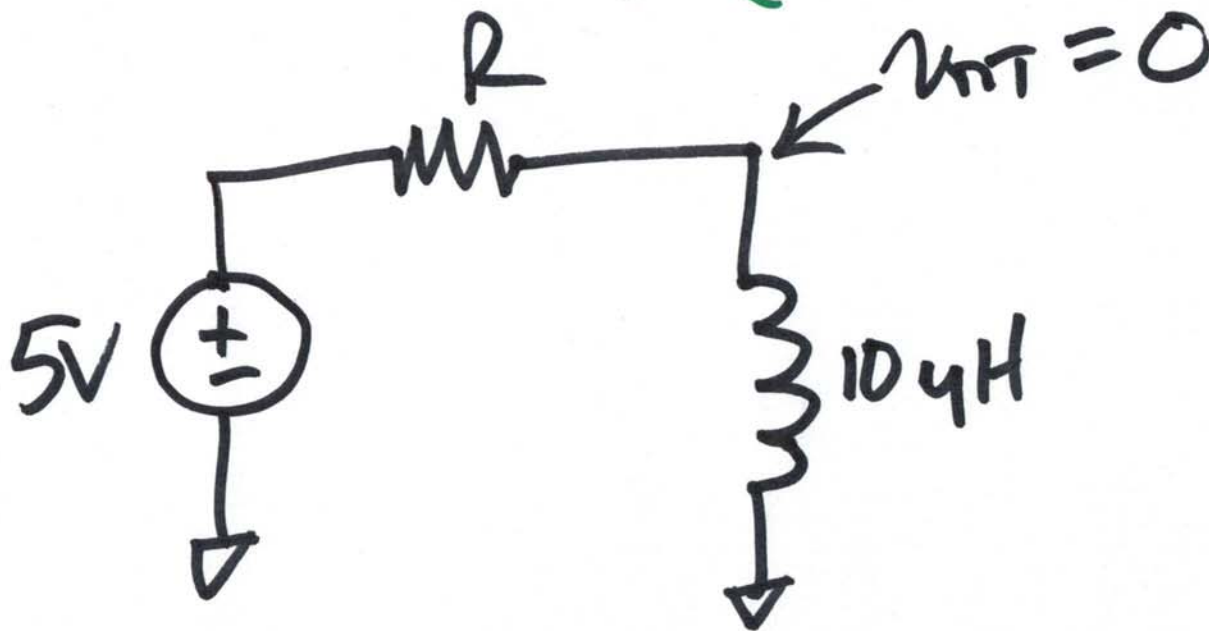
4)

$$i = C \frac{dv}{dt}$$

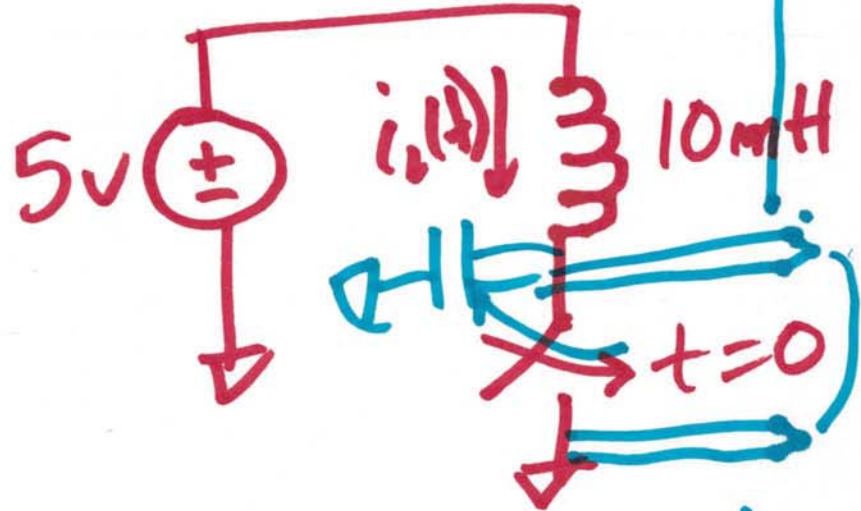
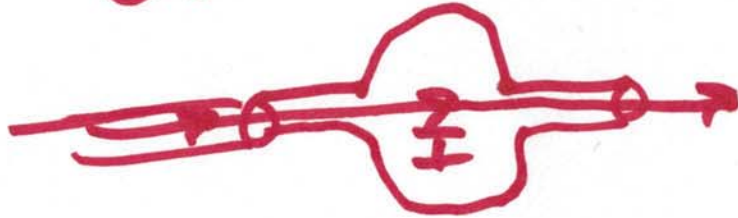
Inductor

$$v = L \frac{di}{dt}$$

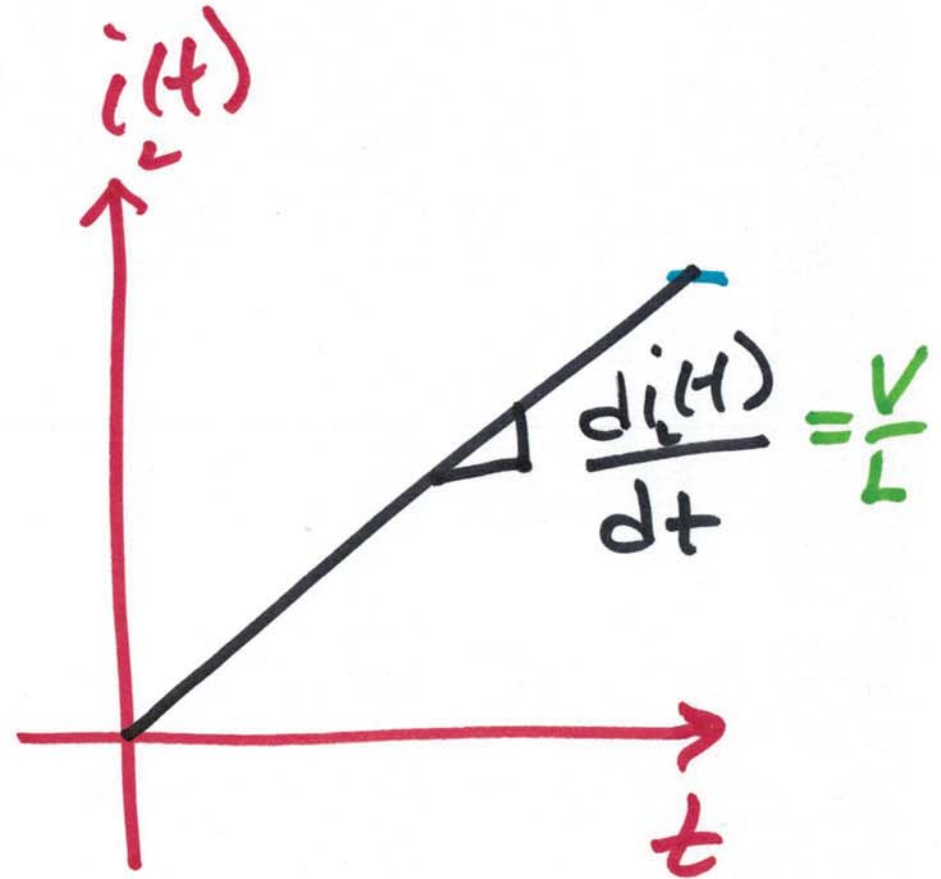
L (Henry's)



$$v = L \frac{di}{dt}$$



electro boom



6)