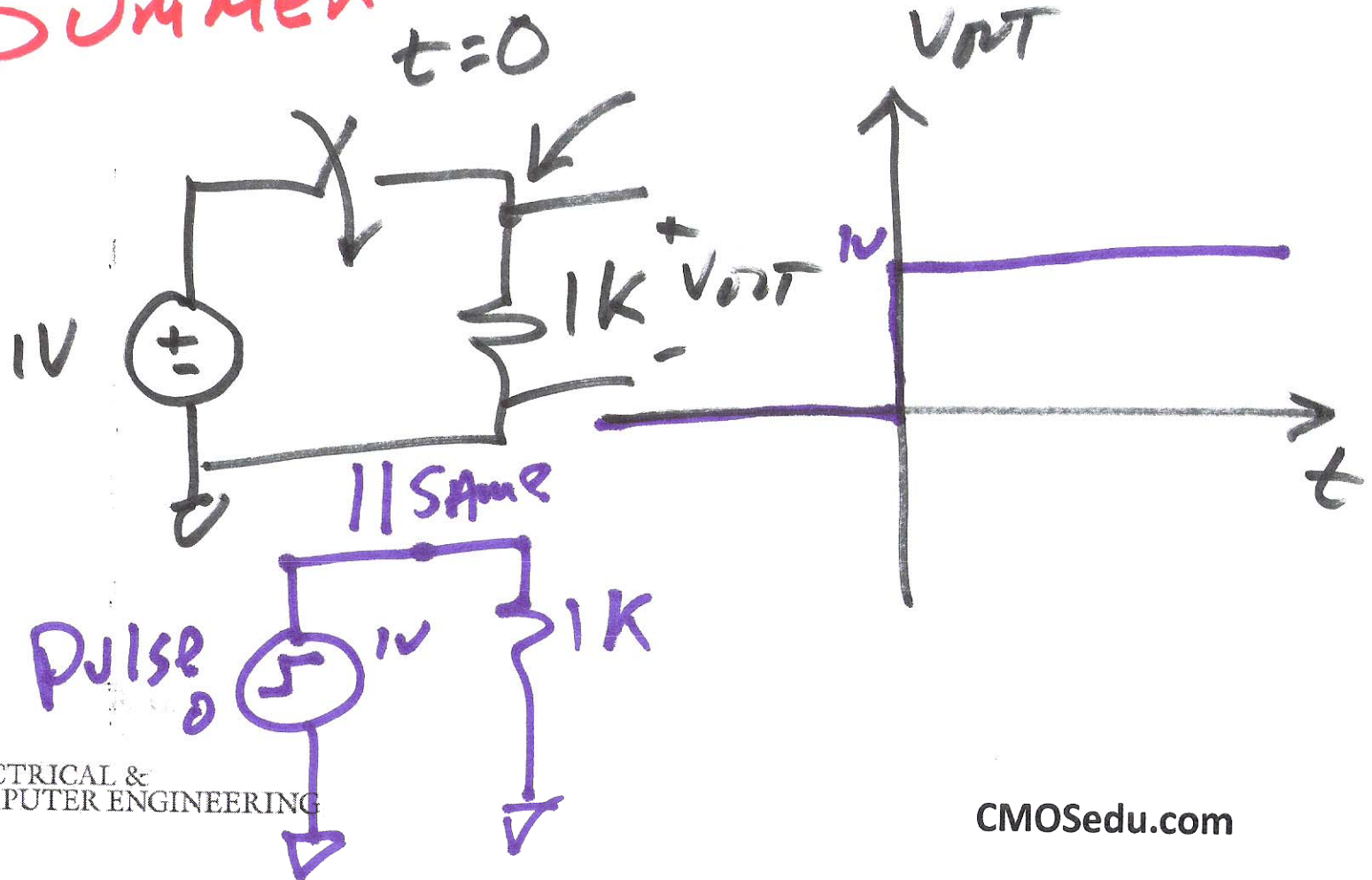


EE 220

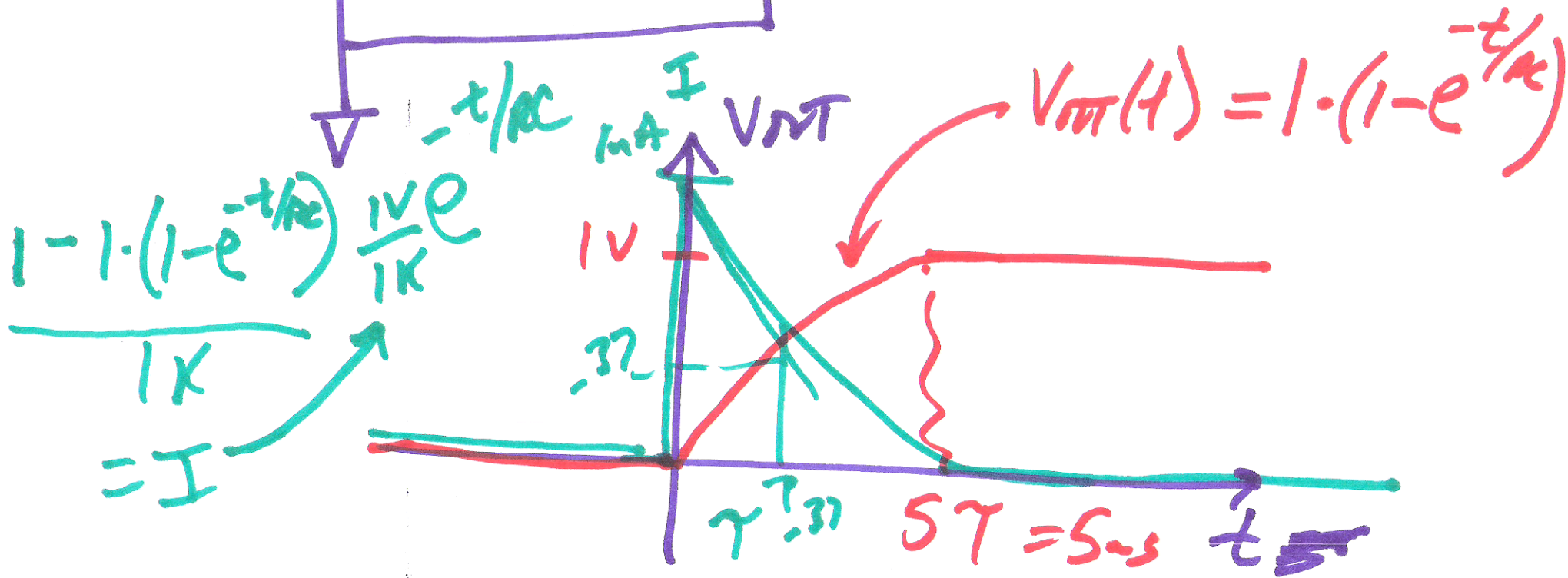
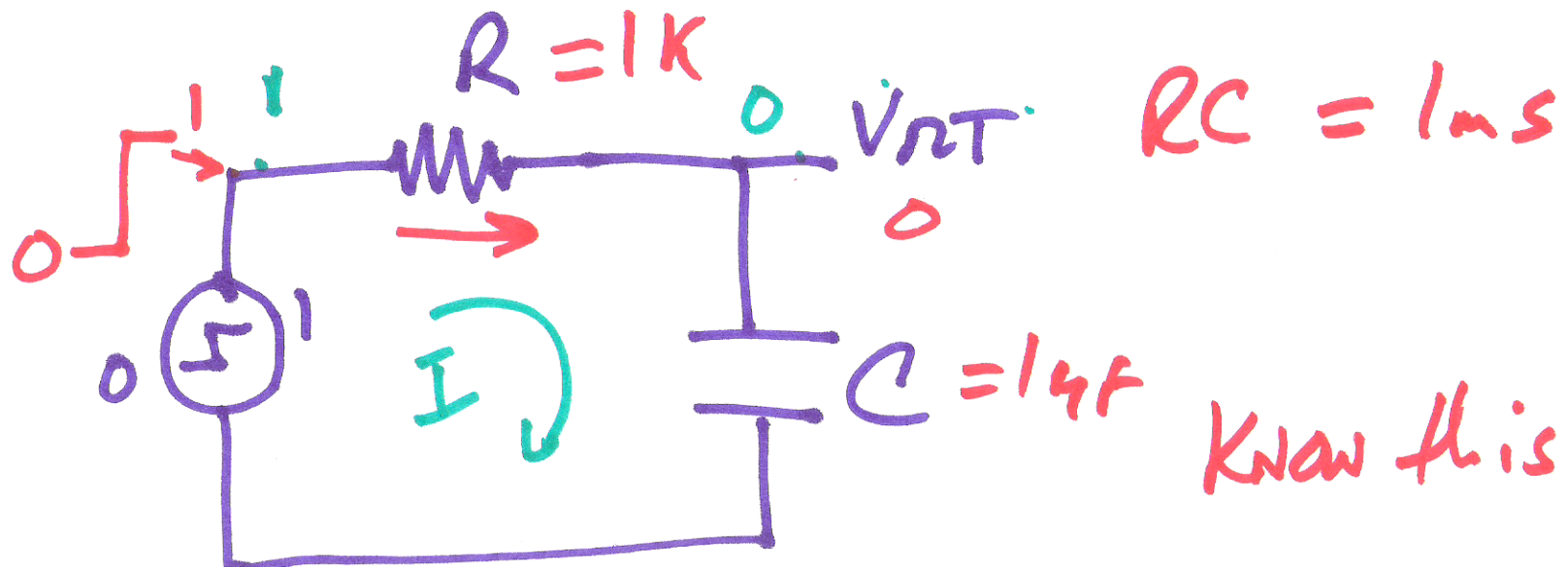
Lecture 14

6/26/14

Summer

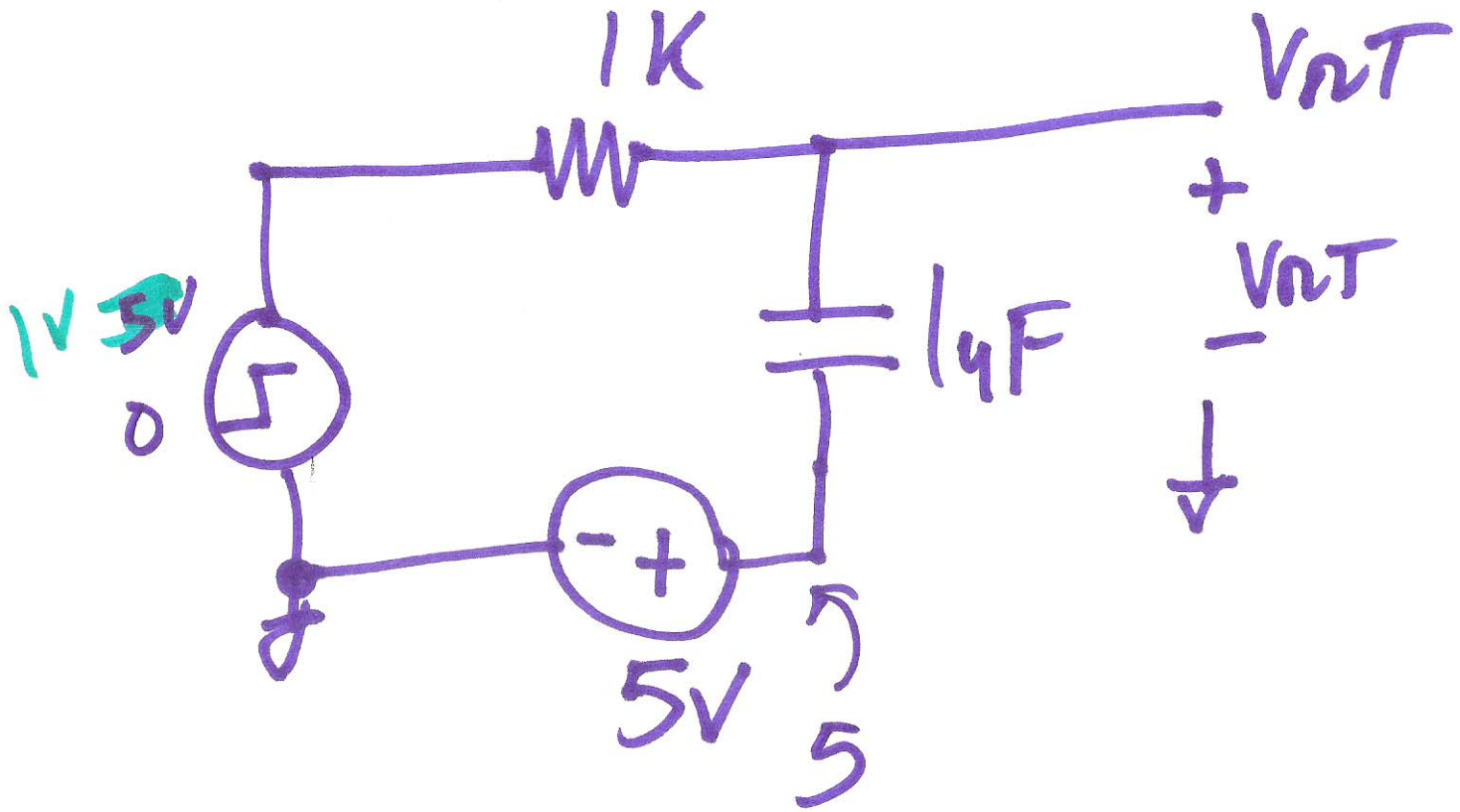


1)

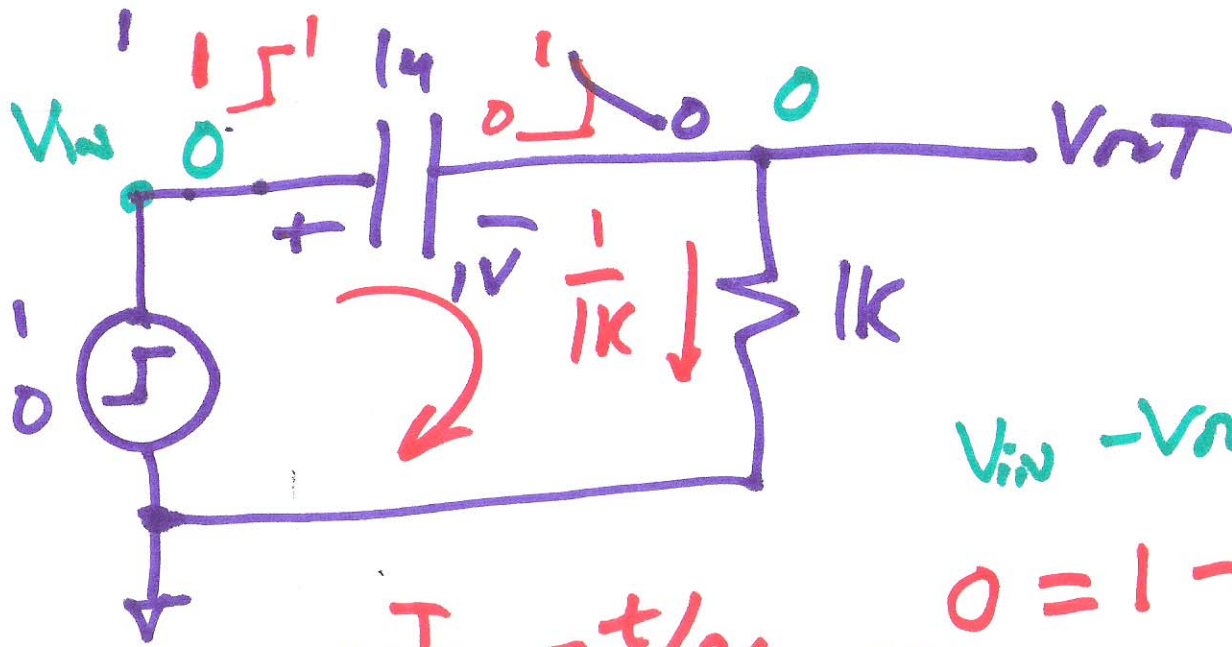


$$I = \frac{1 - 1 \cdot (1 - e^{-t/RC})}{1K} = \frac{1V e^{-t/RC}}{1K}$$

2)



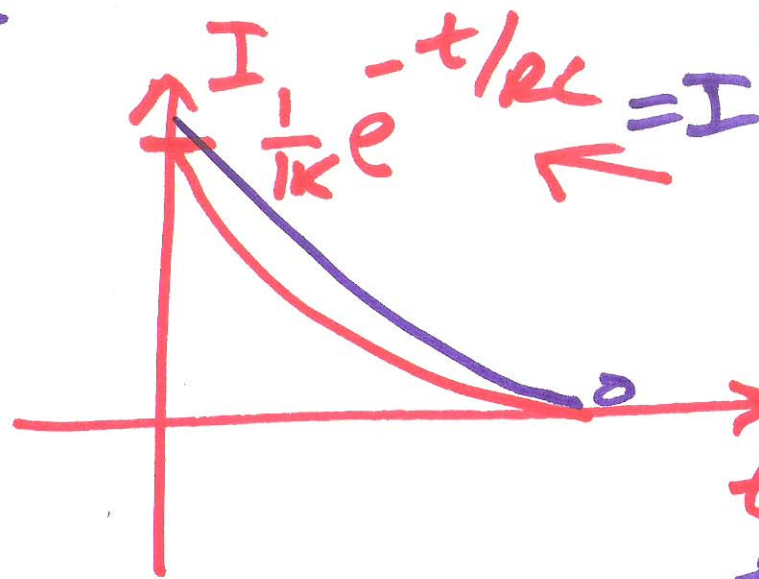
3)



$$V_{in} - V_{out} = V_c = 0$$

$$0 = 1 - V_{out}$$

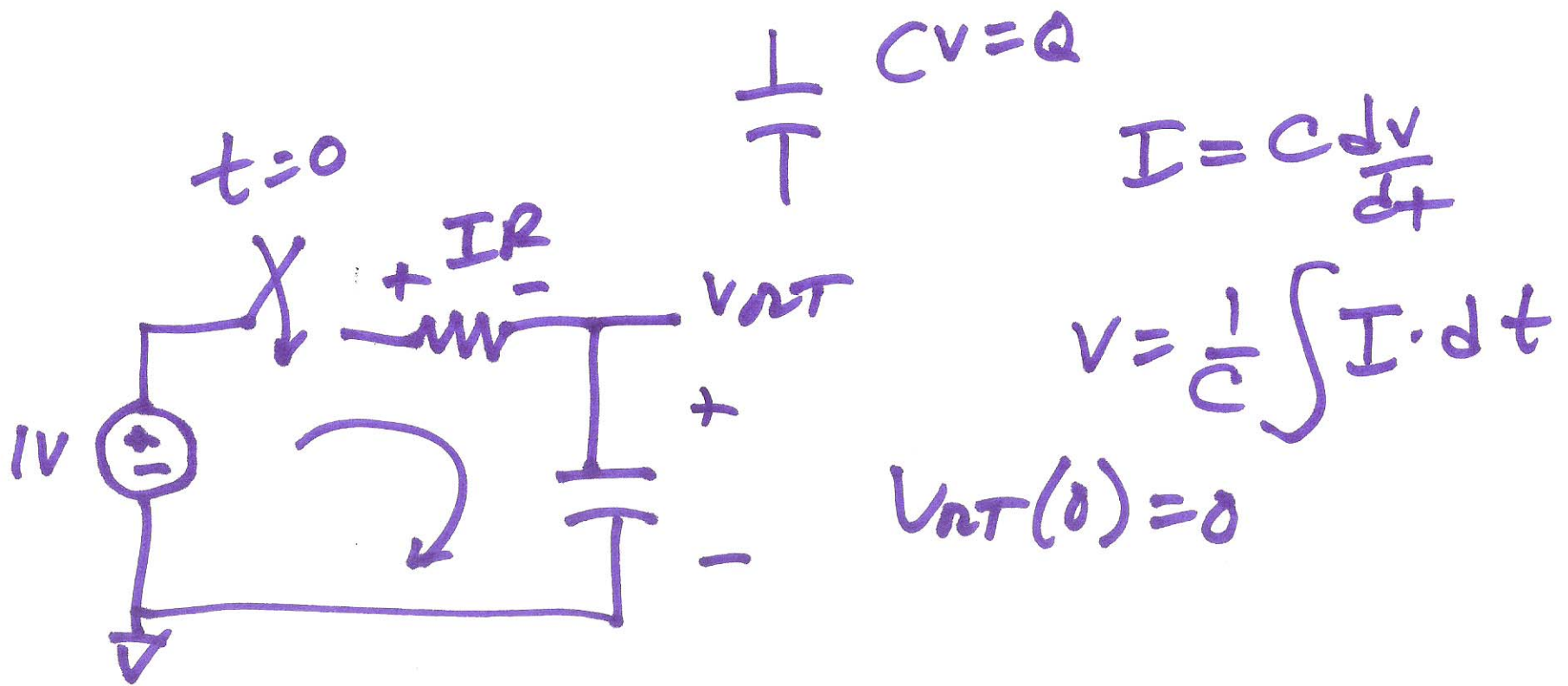
$$V_{out} = 1$$



$$V_{out} = I \cdot k e^{-t/RC}$$

$$= 1 \cdot e^{-t/RC}$$

$$V_c = 1 - 1 e^{-t/RC} = 1(1 - e^{-t/RC})$$

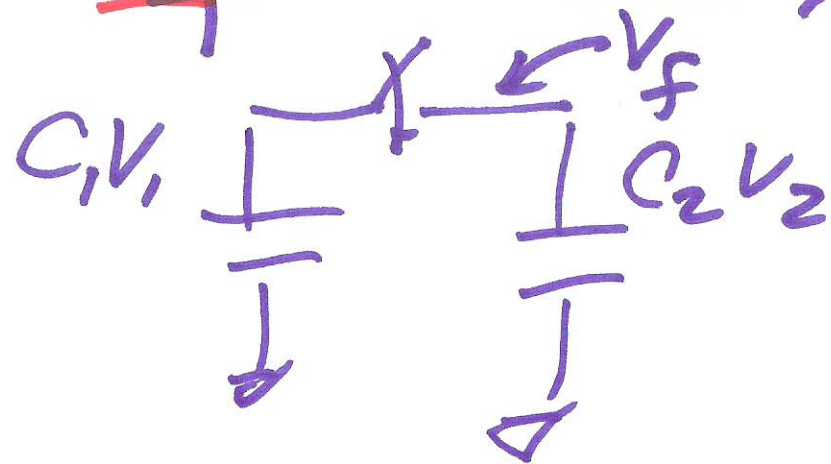
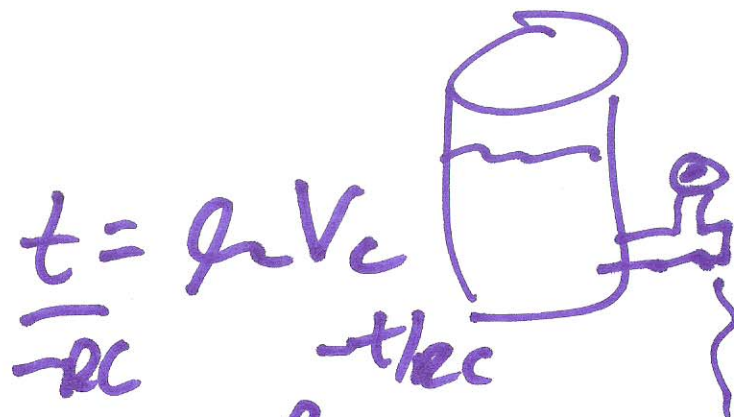
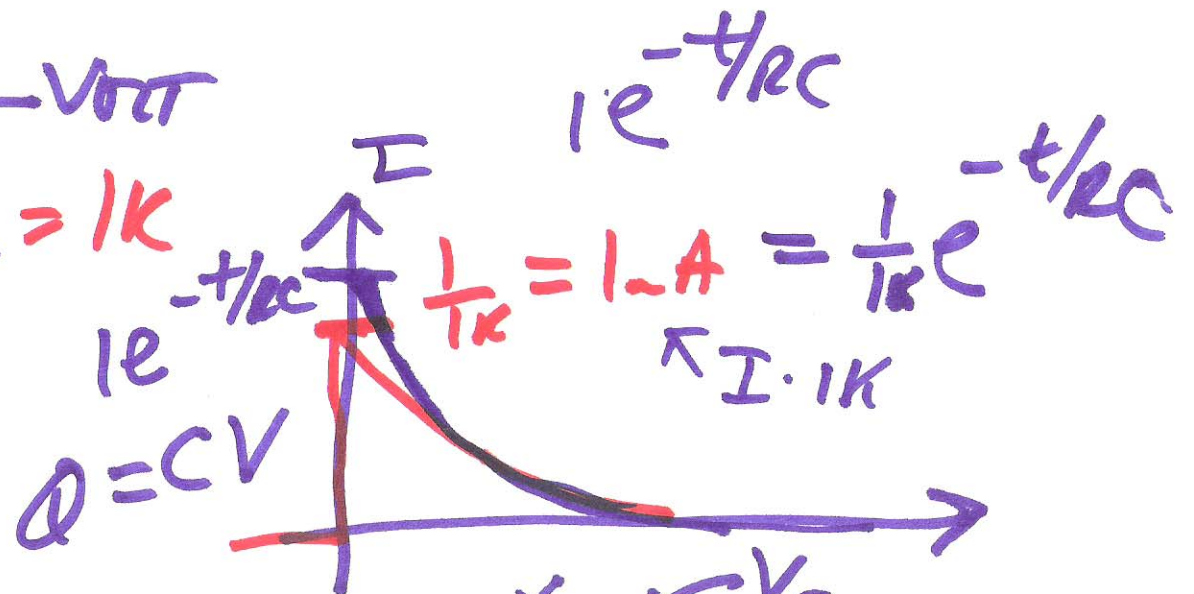
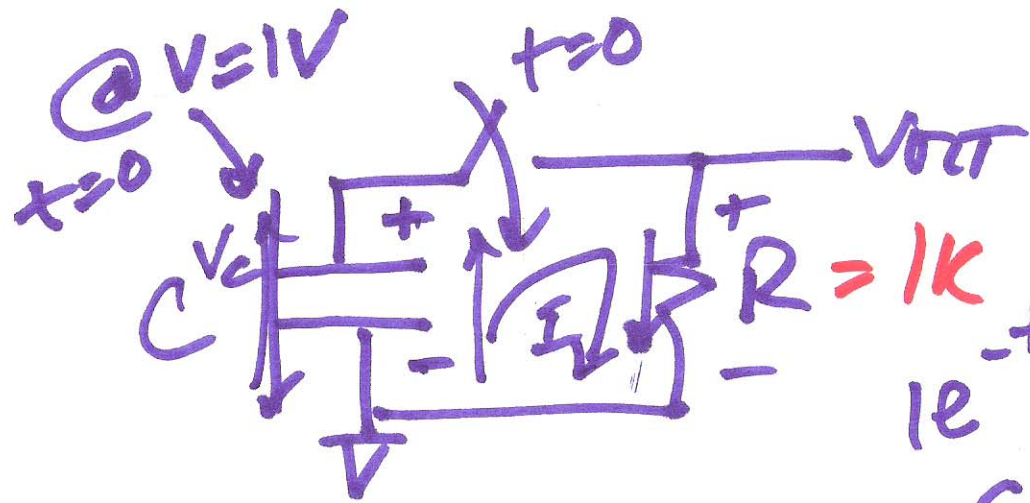


$$1 - I \cdot R - V_{out} = 0$$

$$I = C \frac{dV_{out}}{dt}$$

$$1 - RC \frac{dV_{out}}{dt} = V_{out}$$

5)



$$V_c = e^{-t/RC}$$

$$t C \frac{dV_c}{dt} + \frac{V_c}{R} = 0$$

$$V_f (C_1 + C_2) = C_1 V_1 + C_2 V_2$$

$$-\frac{V_c}{R} = C \frac{dV_c}{dt}$$

$$-RC \frac{dV_c}{V_c} = dt$$

$$-RC \ln V_c = \int dt$$

b)