

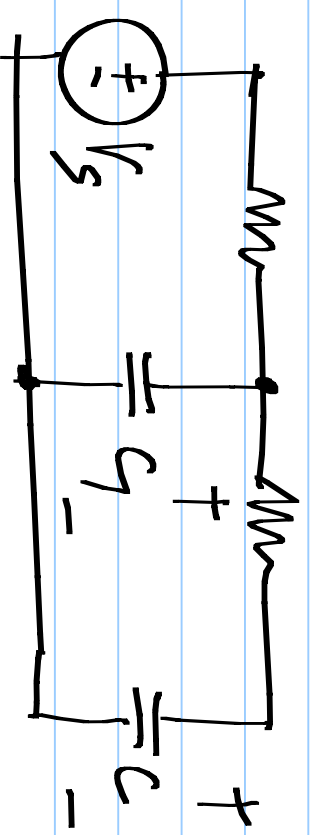
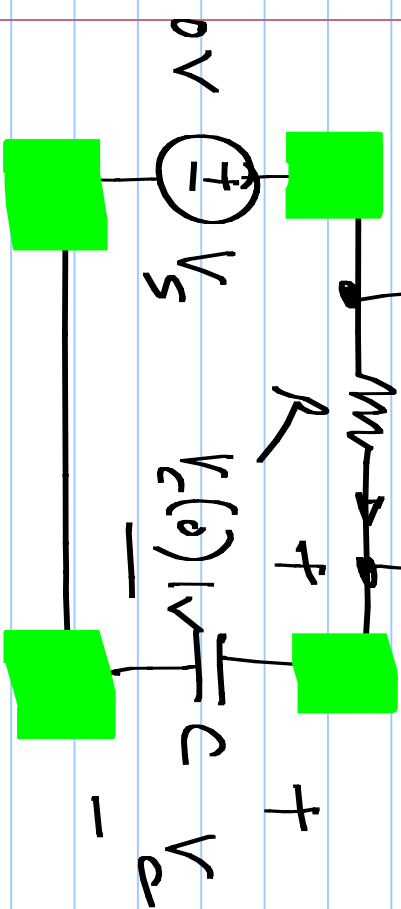
EE 2015

$P^{-1} V C_1$

1st order circuit

2nd order circuit

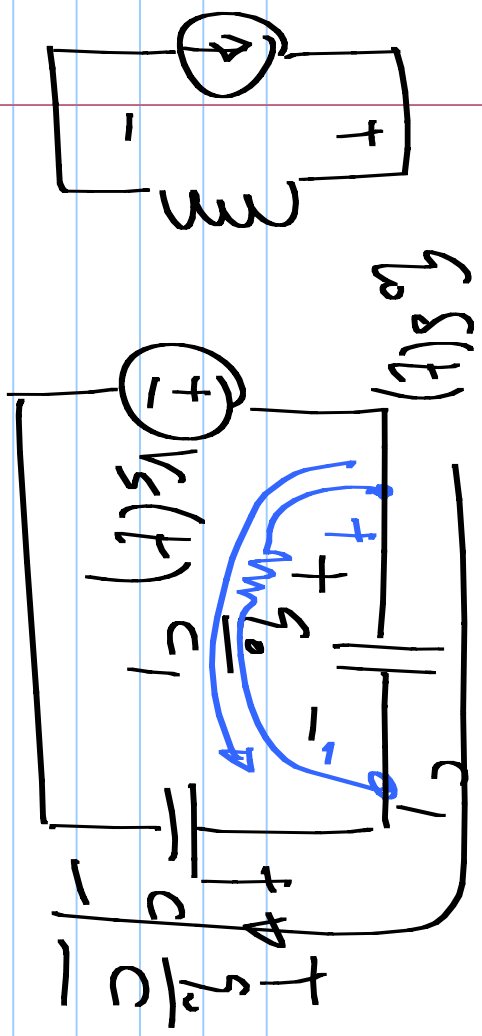
20/9/2017



$$C \cdot \frac{dV_c}{dt} = \frac{V_s - V_c}{R} + \frac{C_1}{C} (V_s - V_c)$$

$t=0$

$$\frac{dV_s}{dt} = \frac{V_s}{R(C+C_1)}$$



$$C \cdot \frac{dV_c}{dt} = I_c$$

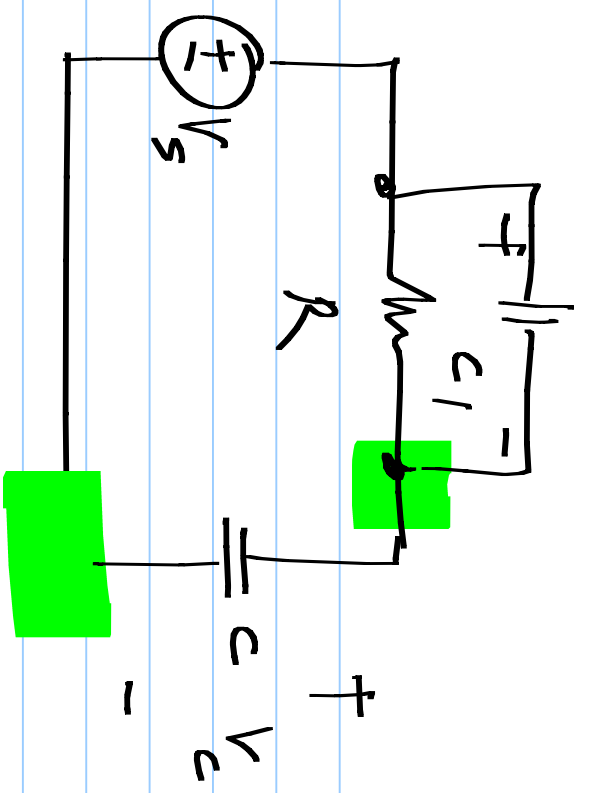
$$i(t) = C V_0 \cdot s(t)$$

frequency

$$\int s(t) \cdot dt = 1$$

t: time





$$V_c(0^-) = 0$$

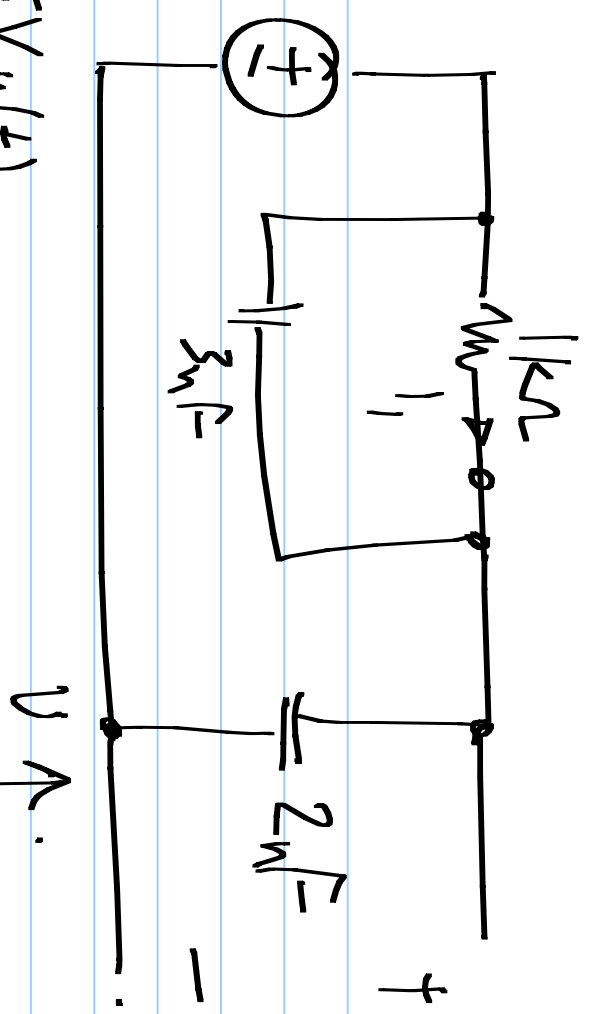
$$V_{c_1}(0^-) = 0$$

$$V_c(0^+) = \frac{C_1}{C+C_1} \cdot V_o$$

$$V_q(0^+) = \frac{C}{C+C_1} \cdot V_o$$

$t=0$
Step - $V_s(t)$
 (premise constant)

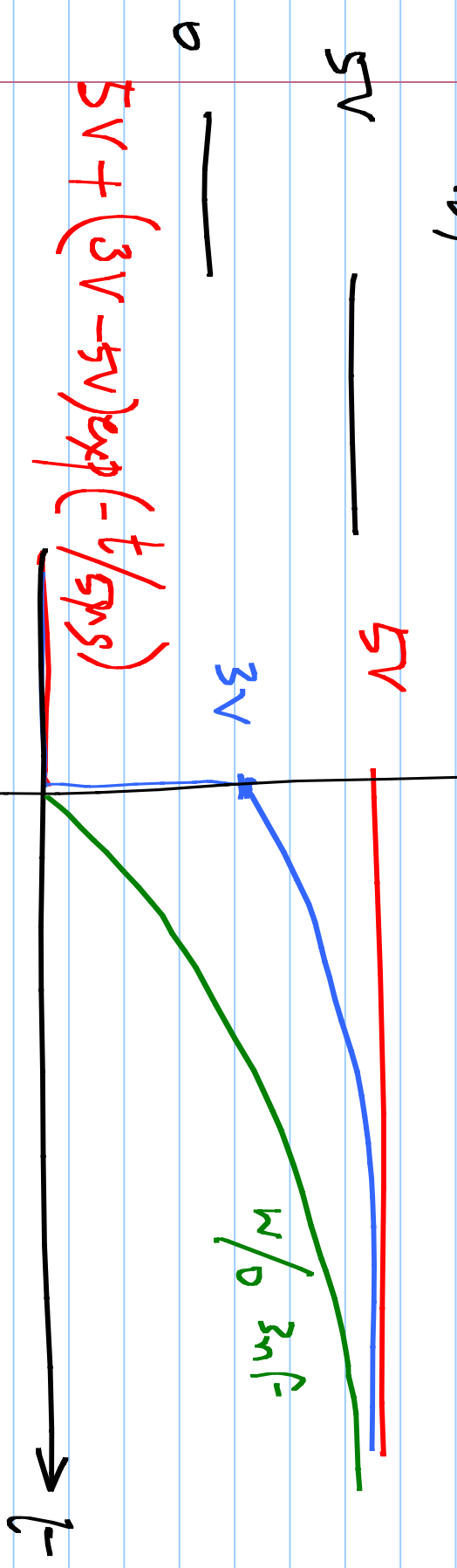
$$V_c(t) = V_s + (V_c(0^+) - V_s) \exp\left(-\frac{t}{R(C+C_1)}\right)$$

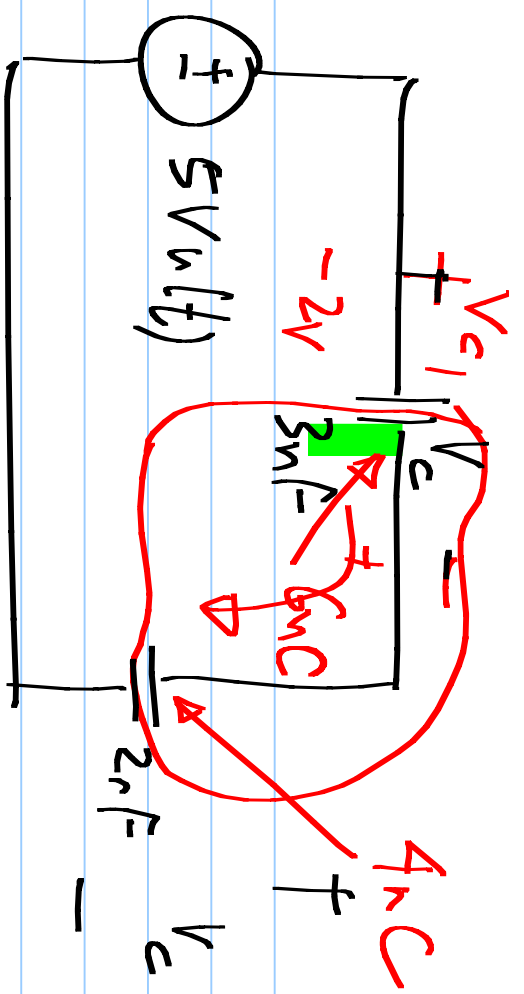


$$V_c(0^-) = 2V$$

$$V_c(t), t > 0$$

$$i_1(t), t > 0$$





$$V_c(0^-) = 2V$$

$$V_c(0^+) =$$

1nC

$$V = \frac{+CV}{C} - \left(\frac{1nC - \Delta Q}{3nF} \right) + \left(\frac{4nC + \Delta Q}{2nF} \right)$$

$$= 5V$$