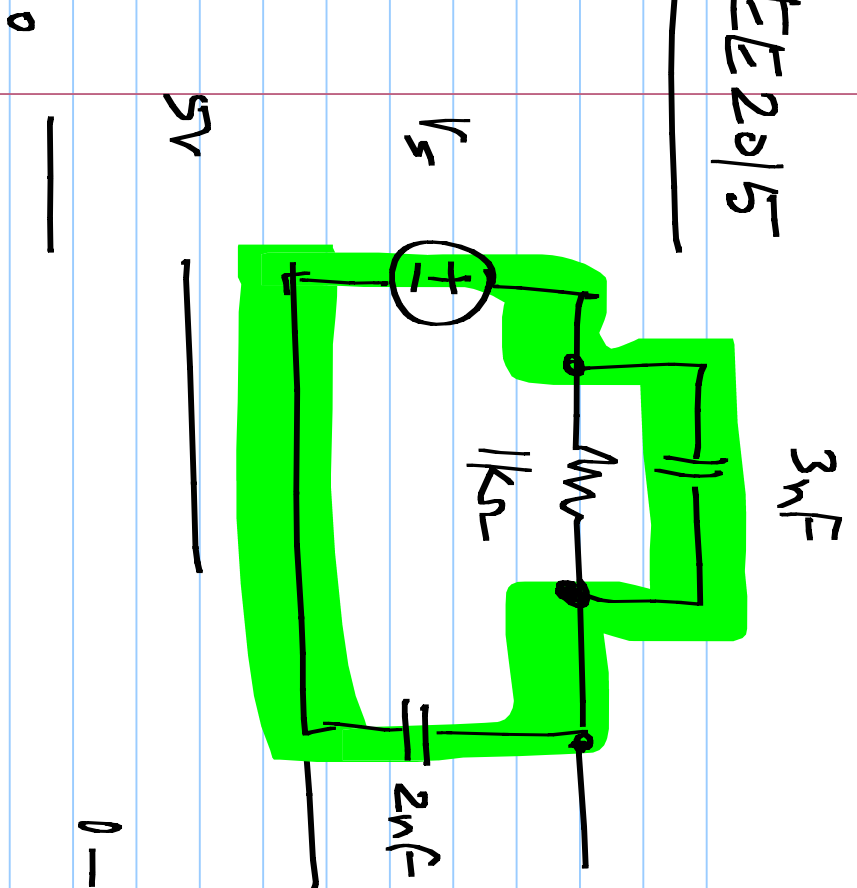


EE 2015

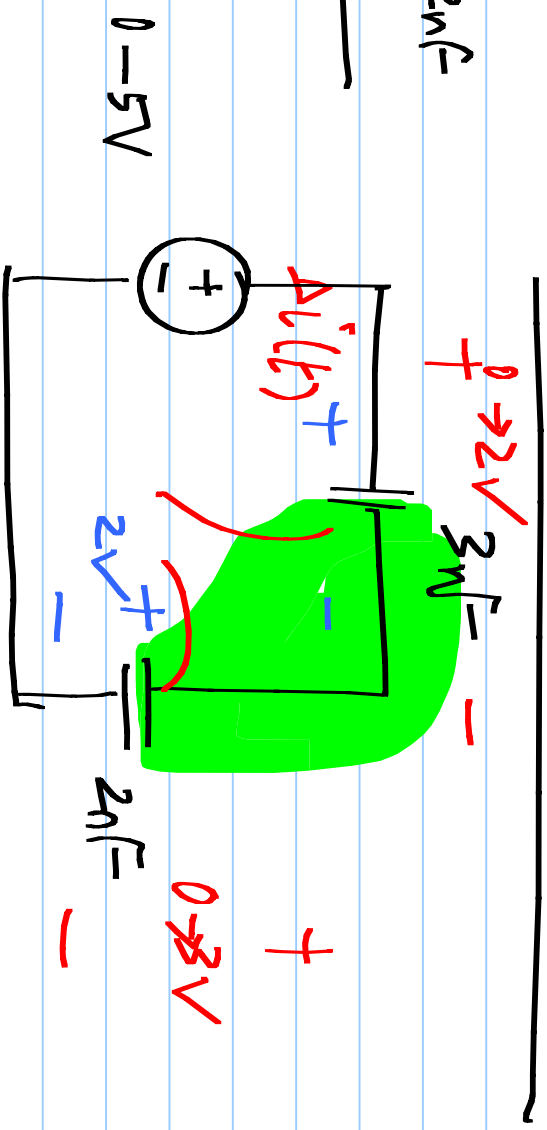


ⓐ $t=0$

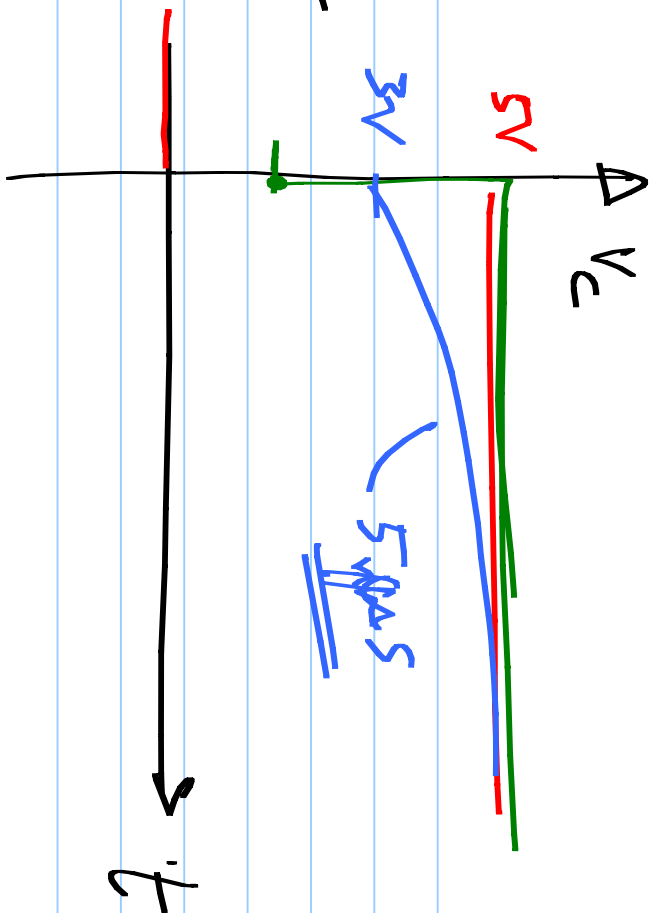
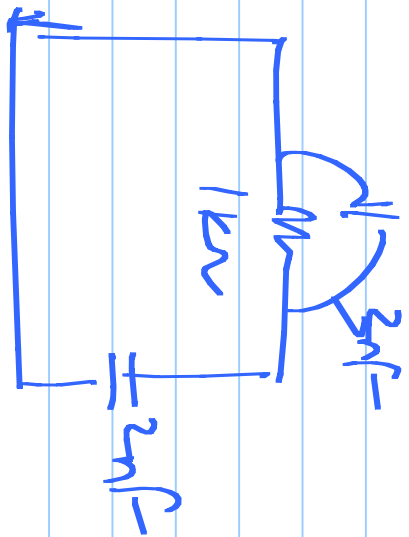
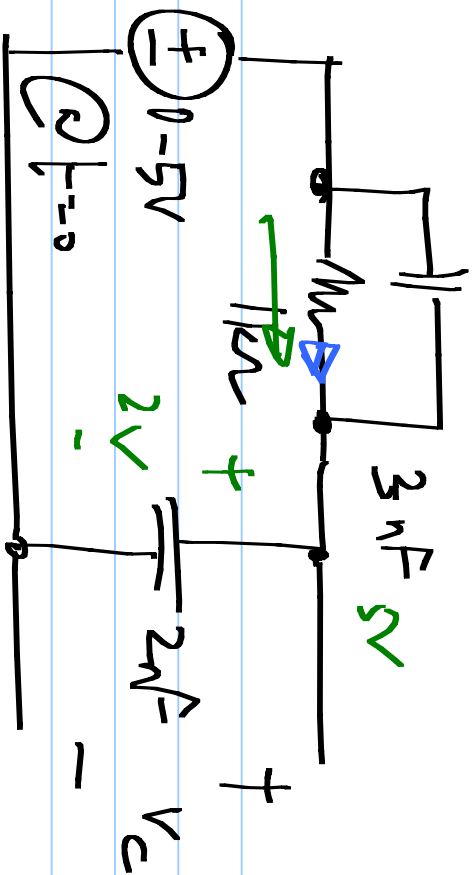
$$i(t) = 6nC \cdot \delta(t)$$

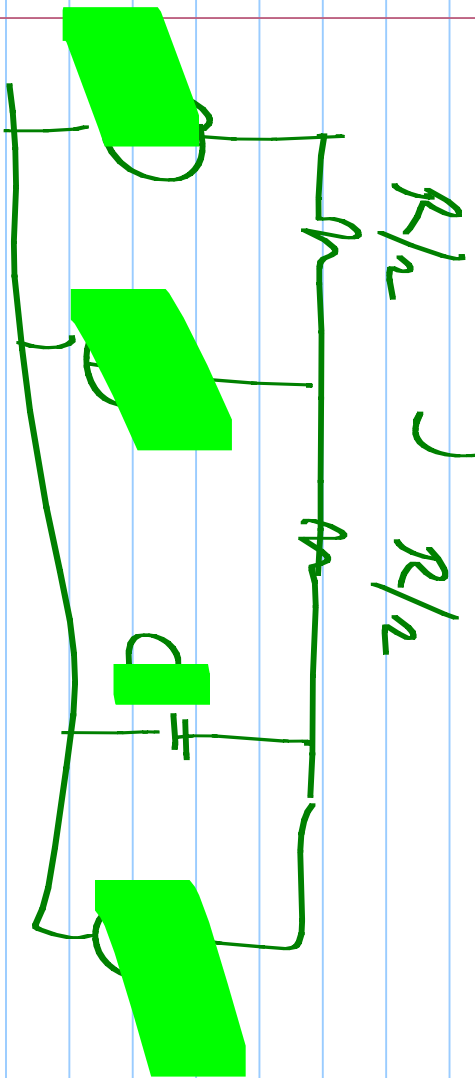
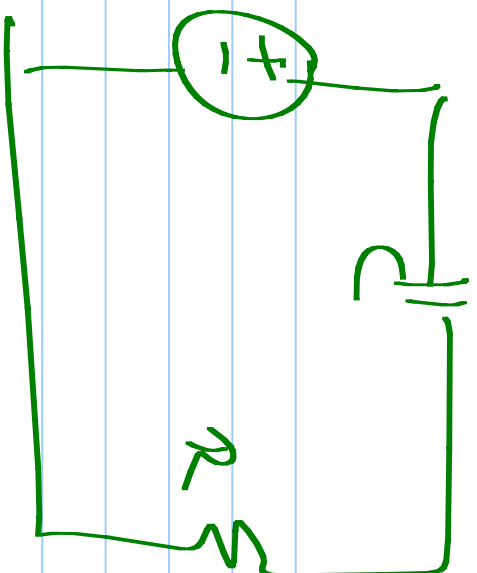
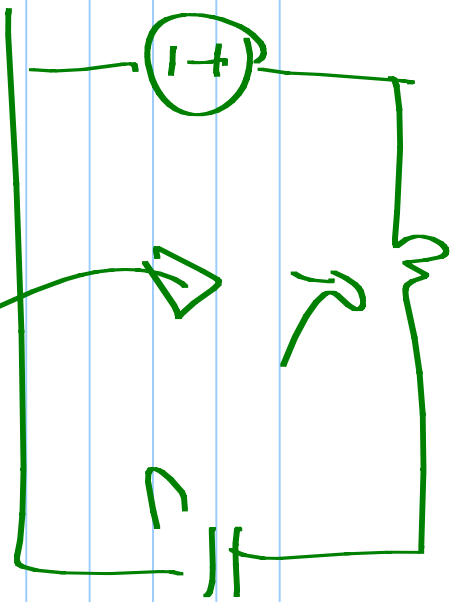
22/9/2017

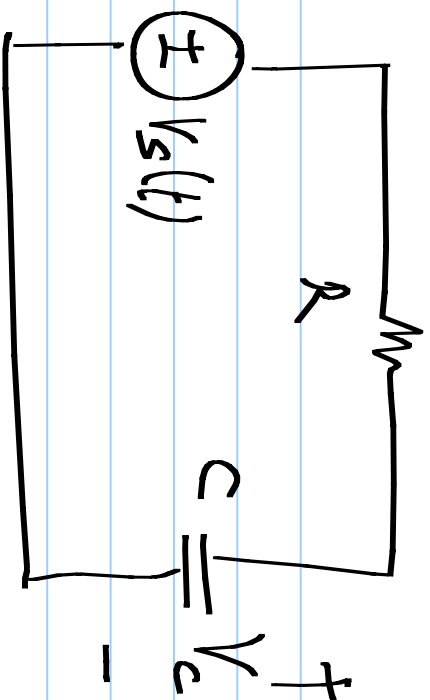
impulse current @ $t=0$



$2nF : 2V \rightarrow 5V$
 $3nF : -2V \rightarrow 0$







$$V_s(t) = V_p \exp(st)$$

$$= sCR \cdot V_c + V_c$$

$$RC \frac{dV_c}{dt} + V_c = V_p \exp(st)$$

$V_c = \alpha \exp(st)$

$$\frac{dV_c}{dt} = \frac{dV_c}{dt} - s V_p \exp(st)$$

$$RC \cdot \frac{dV_c}{dt} + sCR V_p \exp(st) + V_c = 0$$

$$RC \frac{dV_c}{dt} + V_c = -sCR V_p \exp(st)$$

$$V_c(t) = \frac{V_p}{sR+1} \exp(st) + \left(V_c(0) - \frac{V_p}{sR+1} \right) \exp(-t/\tau_c)$$

SCRTGC

Forced response

natural response

Forced response to $\exp(st)$

$$s \neq -\tau_c$$

is

$\exp(st)$

Sign fn. of linear system

frequency