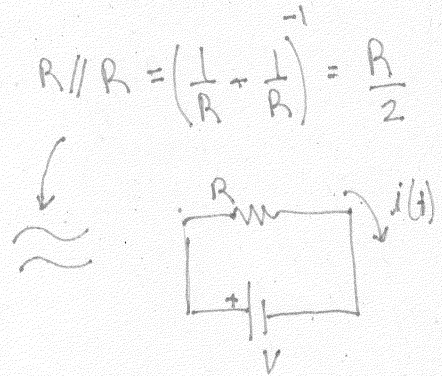
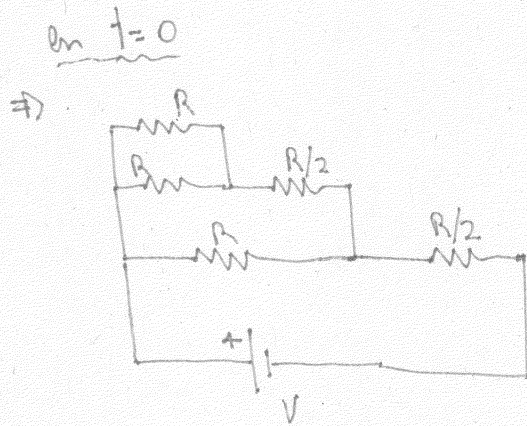


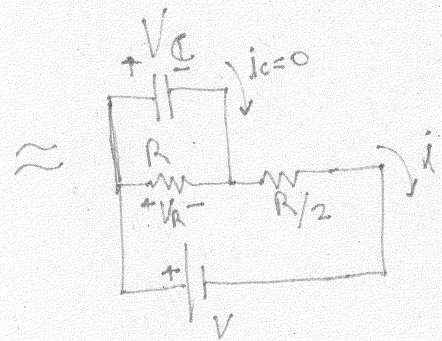
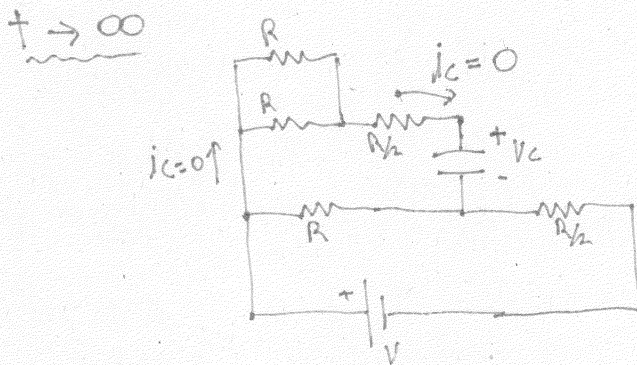
Ejercicio 3

a) S abierto mucho tiempo $\Rightarrow V_C(t=0) = 0$



$\Rightarrow i(t=0) = \frac{V}{R}$

b)



$V_C = V_R$

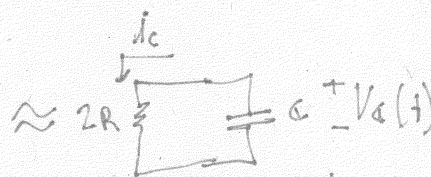
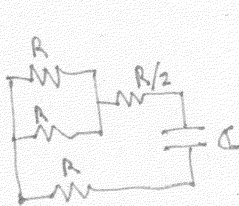
$i = \frac{V}{R + R/2} = \frac{2V}{3R} \Rightarrow V_R = \frac{2V}{3}$
($i \cdot R = V_R$)

$V_C(t \rightarrow \infty) = \frac{2V}{3}$

$\Rightarrow E_C = \frac{1}{2} C \cdot V_C^2 = \frac{1}{2} C \left(\frac{2V}{3} \right)^2 = \frac{2}{9} C \cdot V^2$

$E_C = \frac{2}{9} C \cdot V^2$

c)



$i_C \cdot 2R = V_C$
 $C \cdot V_C = q \Rightarrow C \cdot \frac{dV_C}{dt} = -i_C$

$\Rightarrow -2RC \frac{dV_C}{dt} = V_C$

$\Rightarrow V_C(t) = k e^{-\frac{t}{2RC}}$
 $V_C(0) = \frac{2V}{3}$

$V_C(t) = \frac{2V}{3} e^{-\frac{t}{2RC}}$