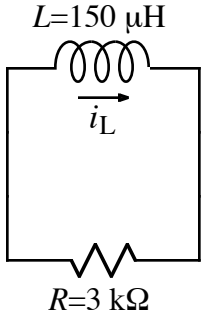
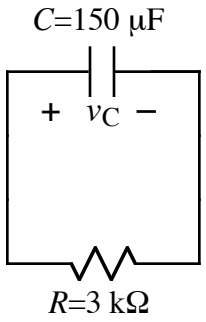
# HOMEWORK #10



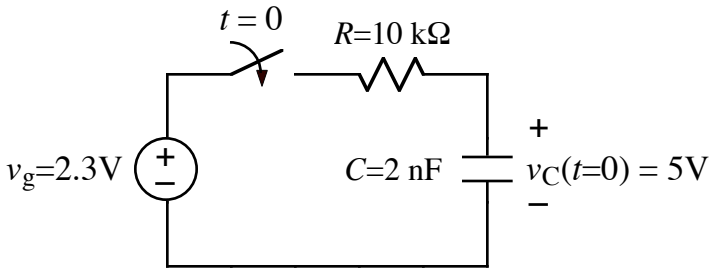
1. Find the current, $i_L$, through the inductor in the circuit below for $t > 0$ if $i_L(t = 0) = 100$ μA.




2. Find the voltage, $v_C$, across the capacitor in the circuit below for $t > 0$ if $v_C(t = 0) = 100$ μV.

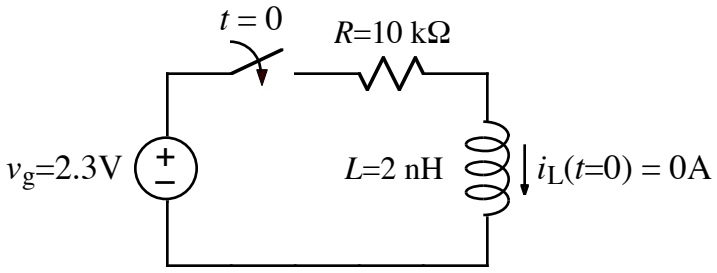



3. After being open for a long time, the switch closes at $t = 0$.



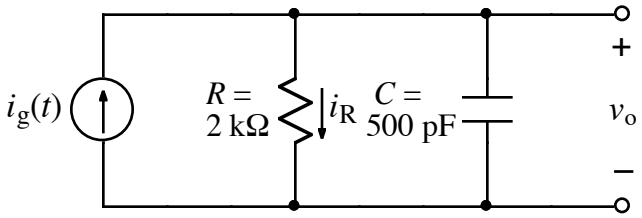

a) Find an expression for $v_C(t)$ for $t \geq 0$.
b) Find the energy stored in the capacitor at time $t = 30$ μs.

4.




a) Find an expression for $i_L(t)$ for $t \geq 0$.
b) Find the energy stored in the inductor at time $t = 30$ μs.

5. After being zero for a long time, the value of $i_g(t)$ changes to 15 mA at $t = 0$ (and remains at 15 mA as time increases to infinity).




a) Find an expression for $v_o(t)$ for $t > 0$.
b) Find the current, $i_R$, in $R$ as a function of time.