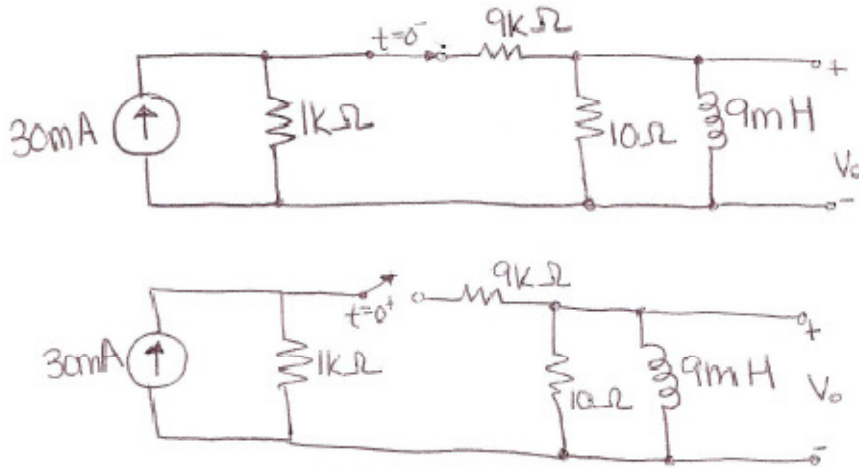


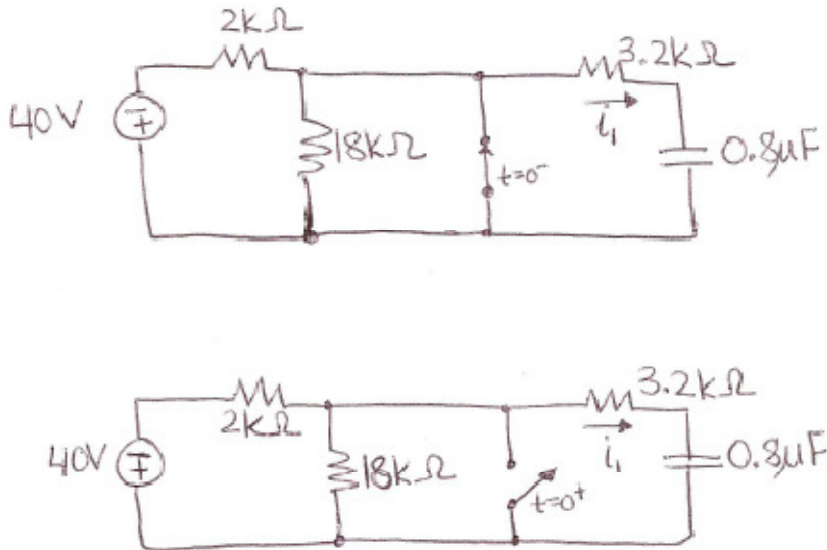
ECE 1270

HOMEWORK #5

1. After being closed (top circuit) for a long time, the switch is opened (bottom circuit) at $t=0$.
- (a) Find an expression for $V_o(t)$ for $(t \geq 0)$.
 - (b) Find the energy stored in the inductor at time $t = 0^+$.

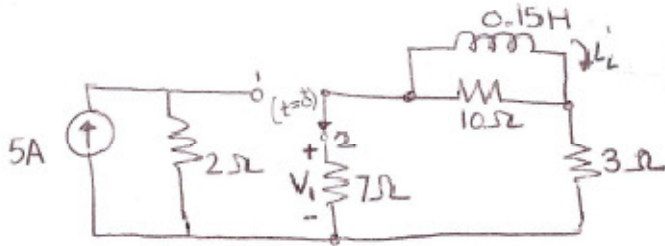
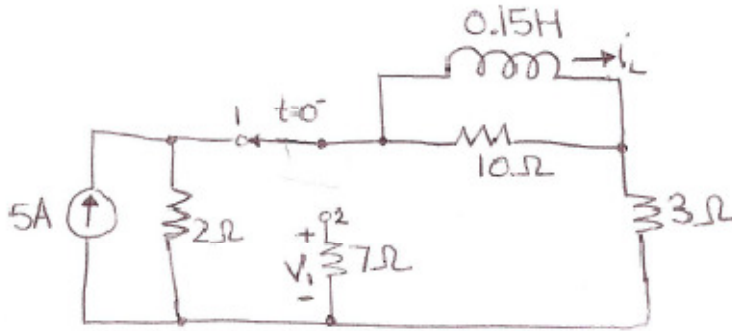


2. After being closed (top circuit) for a long time, the switch is opened (bottom circuit) at $t=0$.
- (a) Find an expression for $i_1(t)$ for $(t \geq 0)$.
 - (b) Find the energy stored in the capacitor at time $t = 0^+$.



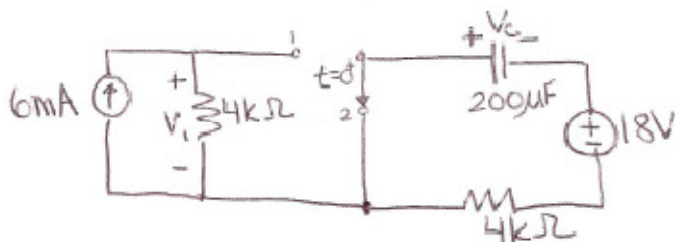
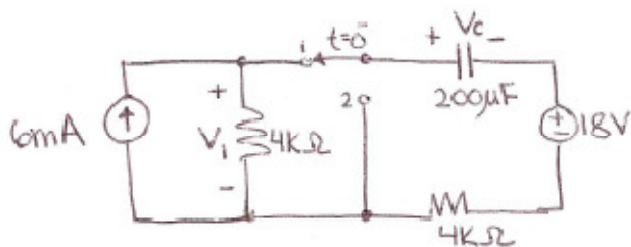
Use the circuits below for problems 3 and 4. After being in position 1 (top circuit) for a long time, the switch is moved to position 2 (bottom circuit) at $t=0$.

3. (a) Find an expression for $i_L(t)$ for ($t \geq 0$).
- (b) Make a sketch of the expression for $i_L(t)$
4. (a) Find an expression for $V_1(t)$ for ($t \geq 0$).
- (b) Make a sketch of the expression for $V_1(t)$

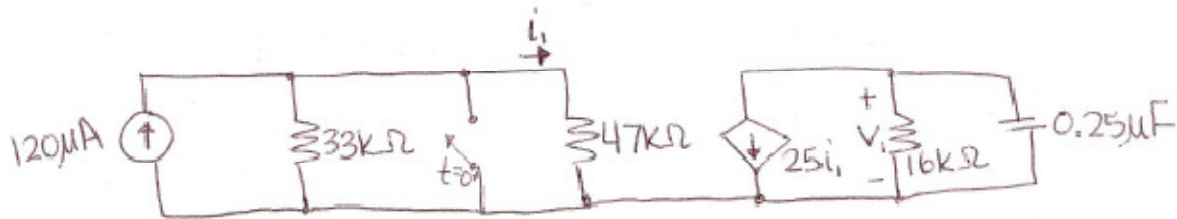
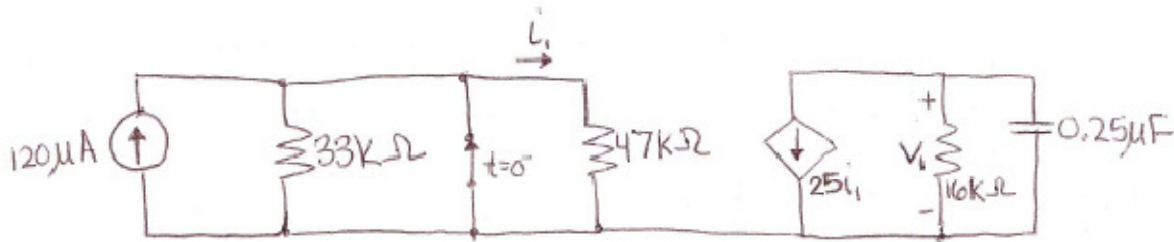


Use the circuits below for problems 5 and 6. After being in position 1 (top circuit) for a long time, the switch is moved to position 2 (bottom circuit) at $t=0$.

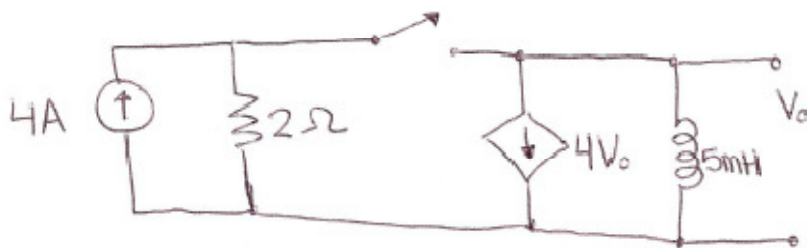
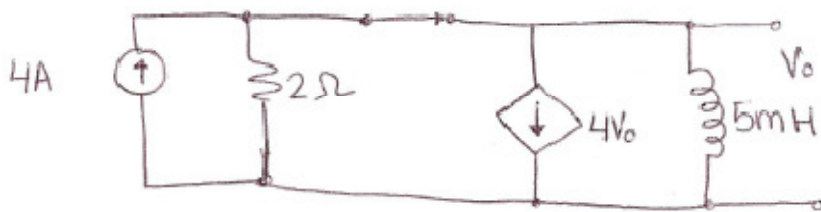
5. (a) Find an expression for $V_C(t)$ for ($t \geq 0$).
- (b) Make a sketch of the expression for $V_C(t)$
6. (a) Find an expression for $V_1(t)$ for ($t \geq 0$).
- (b) Make a sketch of the expression for $V_1(t)$



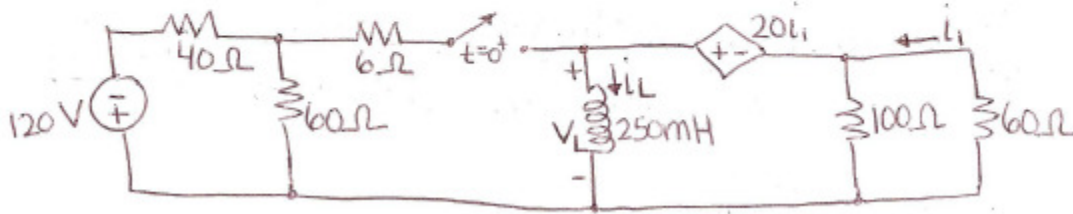
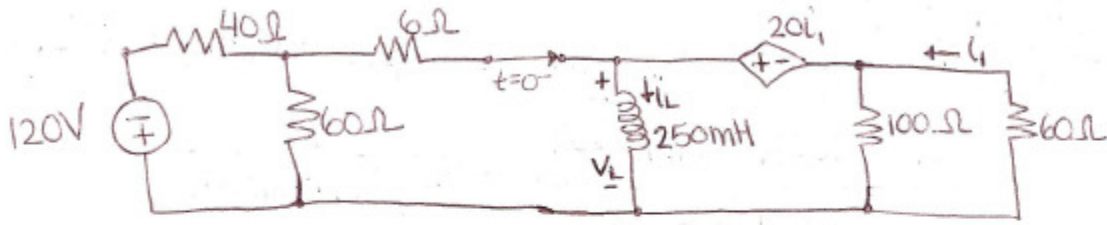
7. After being closed (top circuit) for a long time, the switch is opened (bottom circuit) at $t=0$. Find an expression for $V_1(t)$ for ($t \geq 0$).



8. After being closed (top circuit) for a long time, the switch is opened (bottom circuit) at $t=0$. Find an expression for $V_o(t)$ for ($t \geq 0$).



9. After being closed (top circuit) for a long time, the switch is opened (bottom circuit) at $t=0$. Find an expression for $V_L(t)$ and $i_L(t)$ for ($t \geq 0$).



10. After being in position 1 (top circuit) for a long time, the switch is moved in position 2 (bottom circuit) at $t=0$. Find an expression for $i_1(t)$ for ($t \geq 0$).

