TUTORIAL 3
Second Order Transients

Problem 1

Find V_0 for $t > 0$

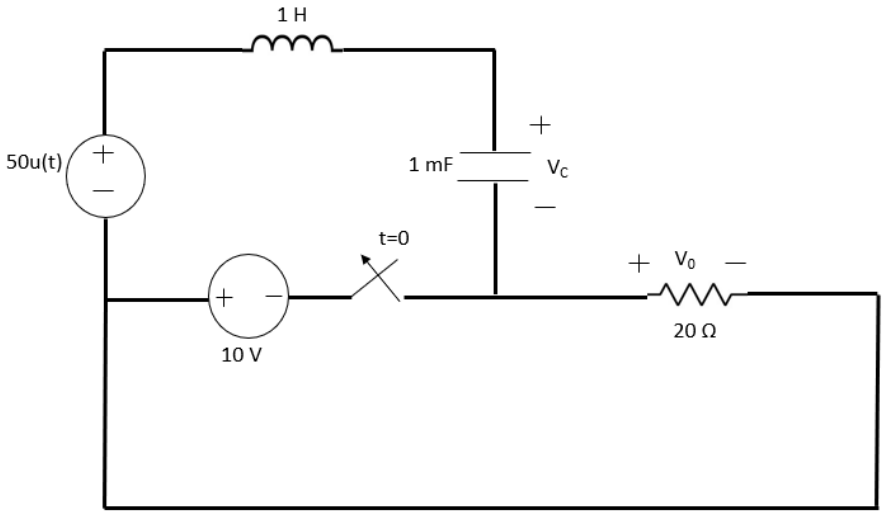

Figure 1: Circuit 1

Problem 2

Find the complete response v and then i for t > 0 in the given figure

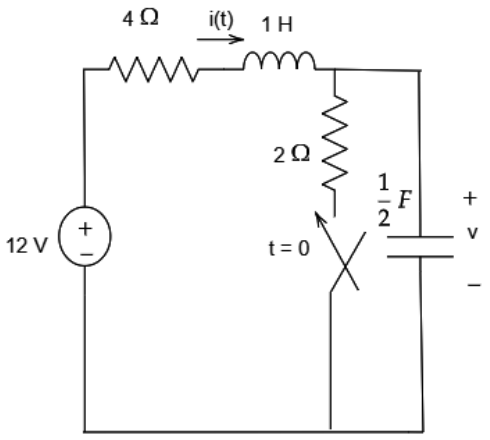

Figure 2: Circuit 2

Problem 3

In the given circuit, the switch is initially in position 1. At t = 0, the switch is moved to position 2. Find the time at which the inductor current reaches a steady state. Initially, the capacitor is charged to 2 V.

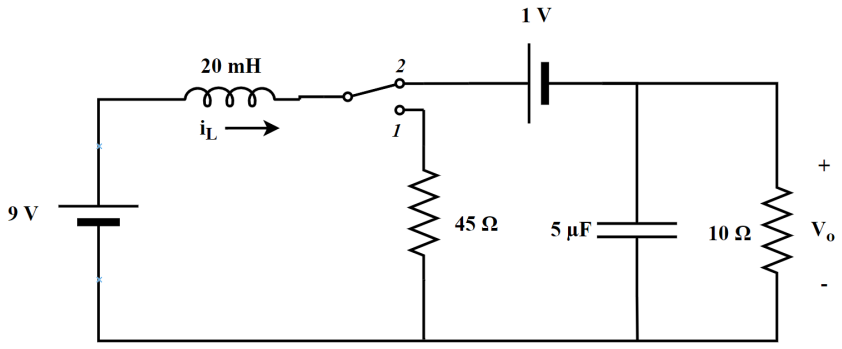

Figure 3: Circuit 3

Problem 4

From the figure shown below determine i_L and V_c for $t \geq 0$

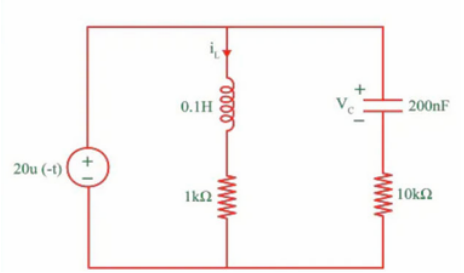

Figure 4: Circuit 4

Problem 5

In Figure 5, find an expression for $v_c(t)$ for $t > 0$

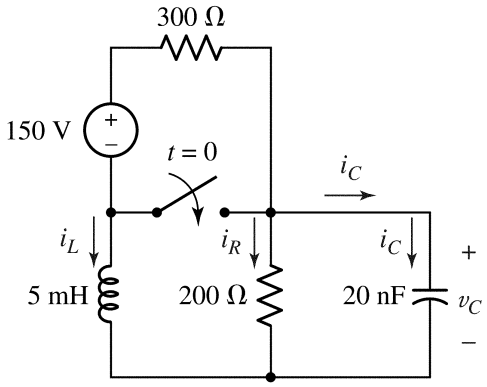

Figure 5: Circuit for problem 5

Problem 6

Having been in position 'a' for a long time, the switch in figure moves to 'b' at t = 0. Find v(t) and V_r(t) for t > 0. V_{in}=12 V

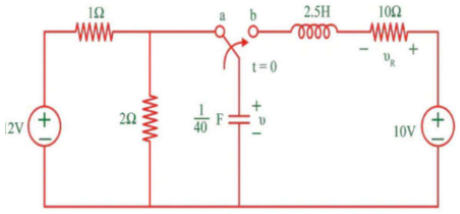

Figure 6: circuit for problem 6