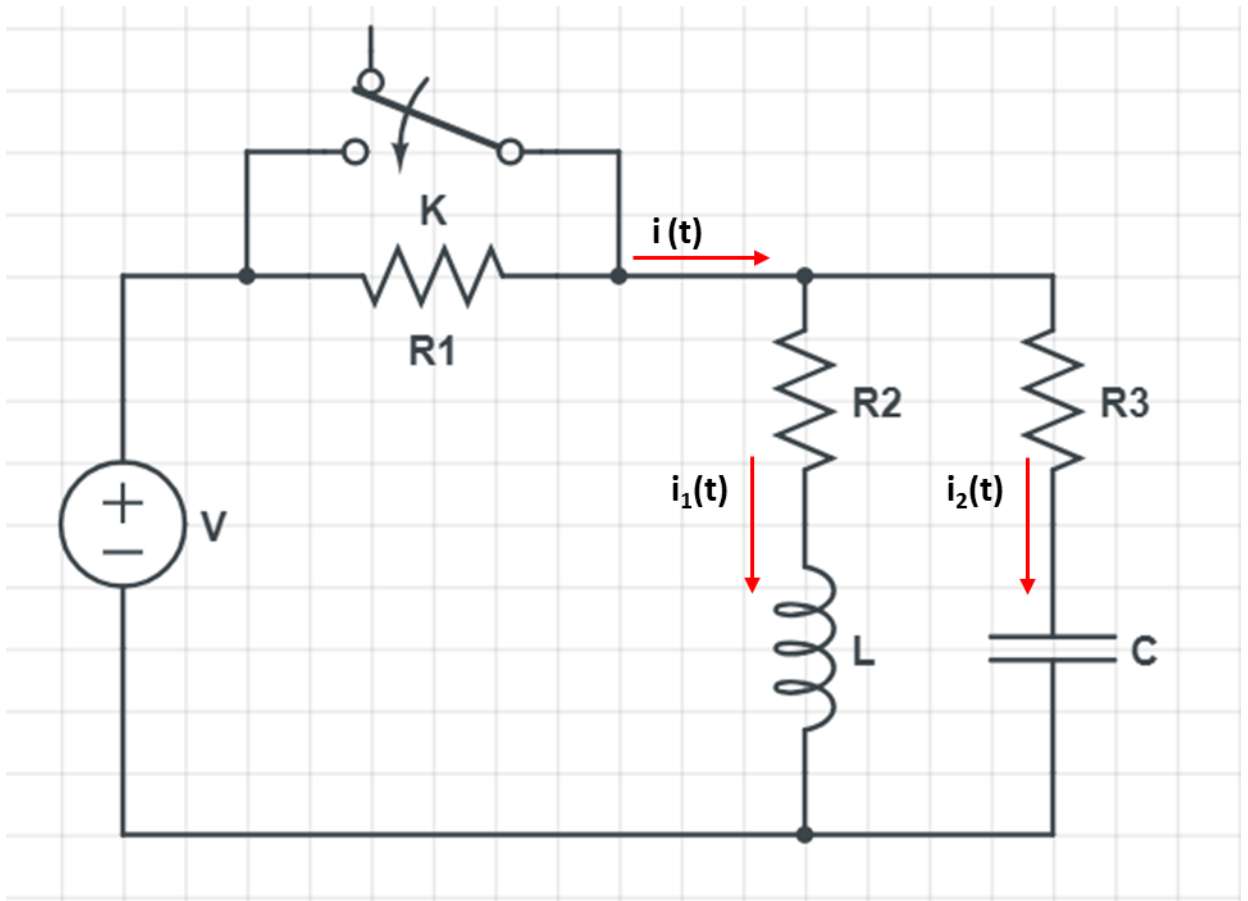


# Evaluation of Initial Conditions

## Problems – In class

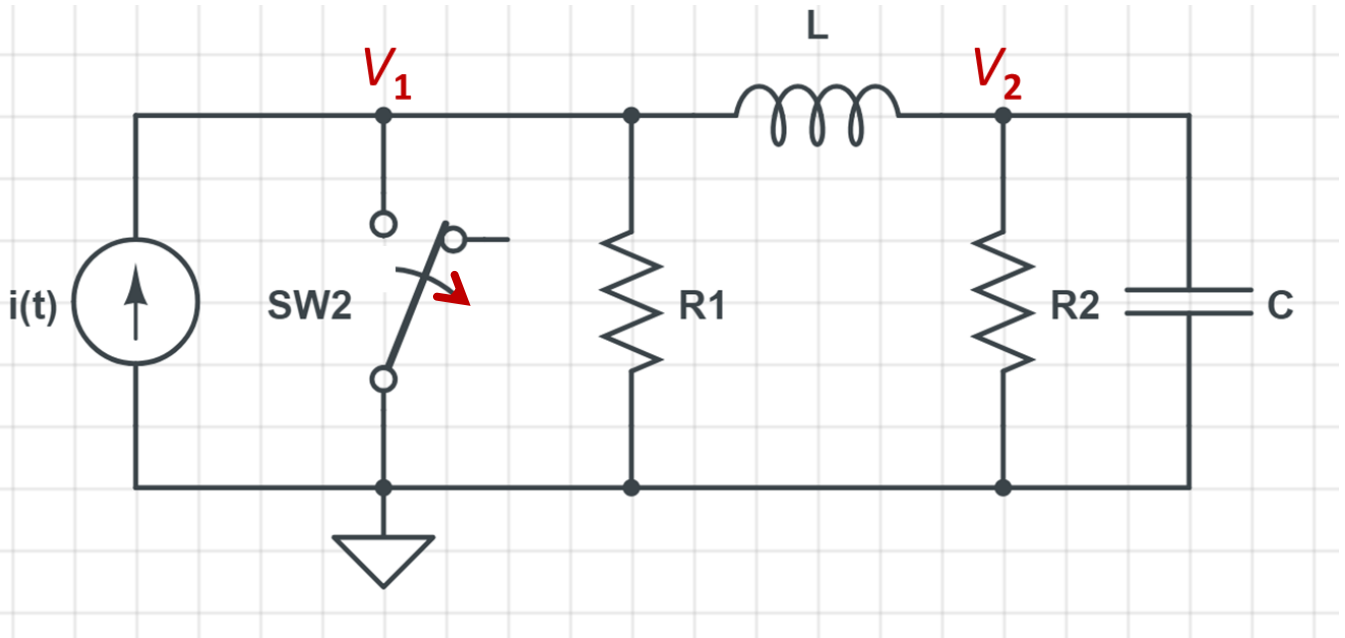
**Problem 1 (5-20):** In the circuit below, we have  $R_1 = 10\Omega$ ,  $R_2 = R_3 = 20\Omega$ ,  $L = 1H$  and  $C = 1\mu F$ . Assume that the steady state is reached with switch  $K$  open. At time  $t = 0$ , the switch is closed. Determine  $i_1(0^+)$ ,  $i_2(0^+)$ ,  $di_1/dt(0^+)$  and  $di_2/dt(0^+)$ .



# Evaluation of Initial Conditions

## Problems – In class

**Problem 2 (5-21):** In the circuit below, the steady state is reached with switch SW2 in closed state. At time  $t = 0$ , the switch is closed. Determine  $V_1(0^+)$ ,  $V_2(0^+)$ ,  $dV_1/dt(0^+)$  and  $dV_2/dt(0^+)$ .



# Evaluation of Initial Conditions

## Problems – In class

**Problem 3 (5-24):** In the circuit below, the steady state is reached with switch K in opened state. At time  $t = 0$ , the switch is closed connected a voltage source  $v(t) = V \sin(t/\sqrt{MC})$ , where  $M$  denotes the mutual inductance between the coupled inductors. Determine  $V_a(0^+)$ ,  $dV_a/dt(0^+)$  and  $d^2V_a/dt^2(0^+)$ .

