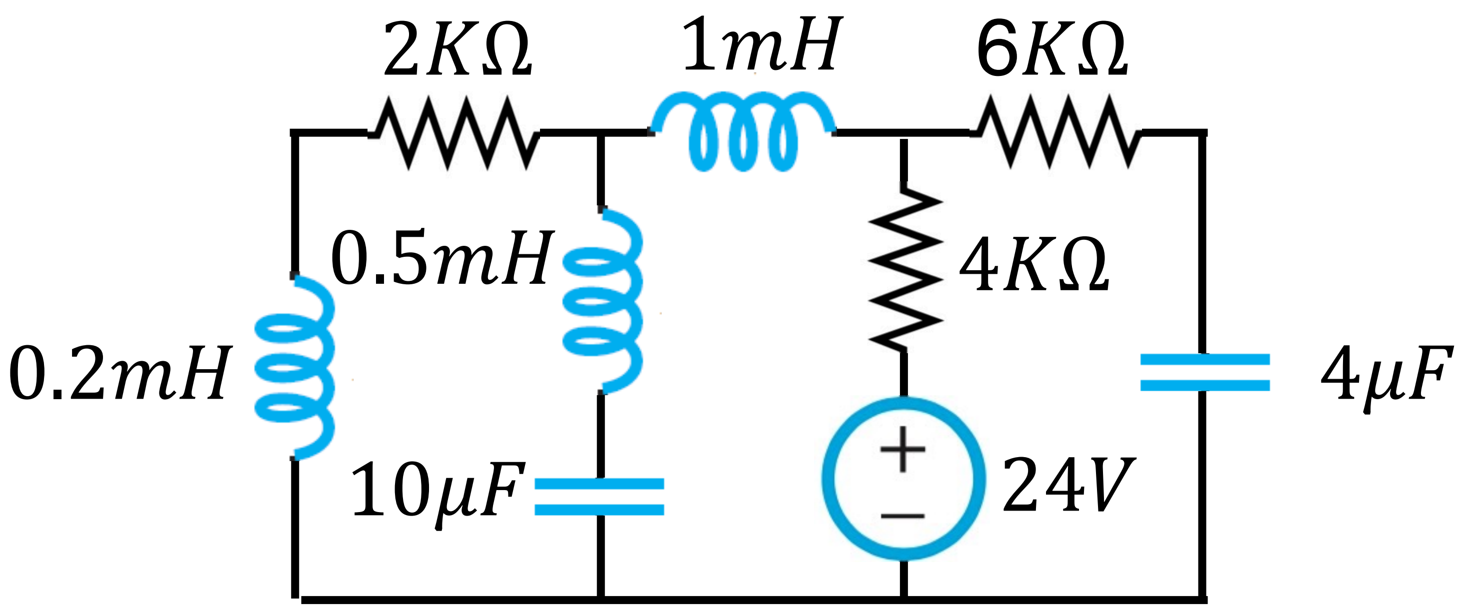
Extra Problem 1

Find the voltage v across the $10\mu F$ capacitor in the circuit under DC condition.



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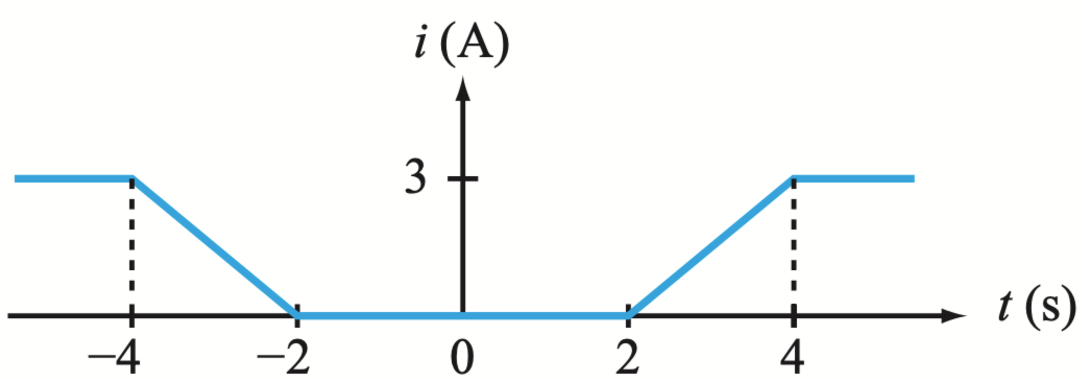
Extra Problem 2

The current i(t) passing through a 0.1 mH inductor is given by the waveform shown below. Determine and plot the corresponding voltage υ(t) across the inductor.



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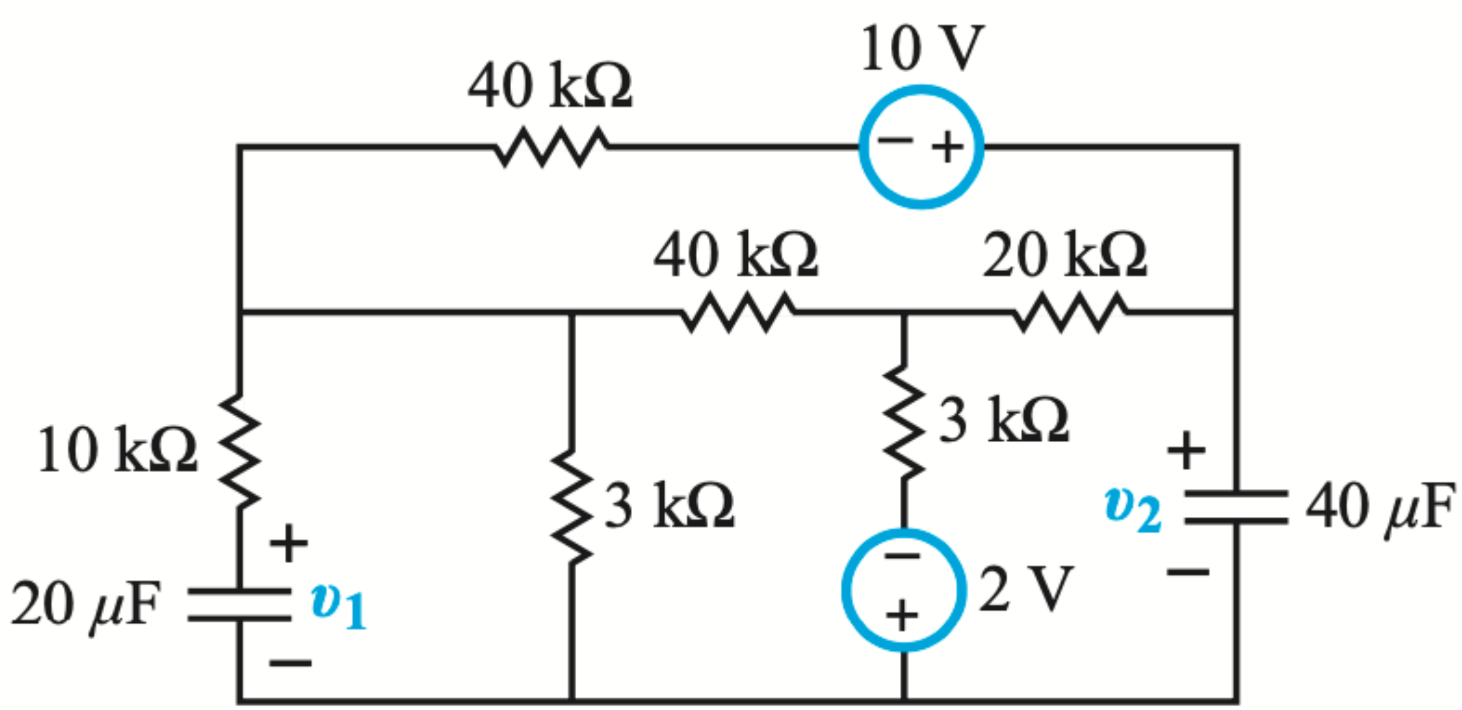
Extra Problem 3

Determine the voltages across the two capacitors in the circuit below under dc conditions.



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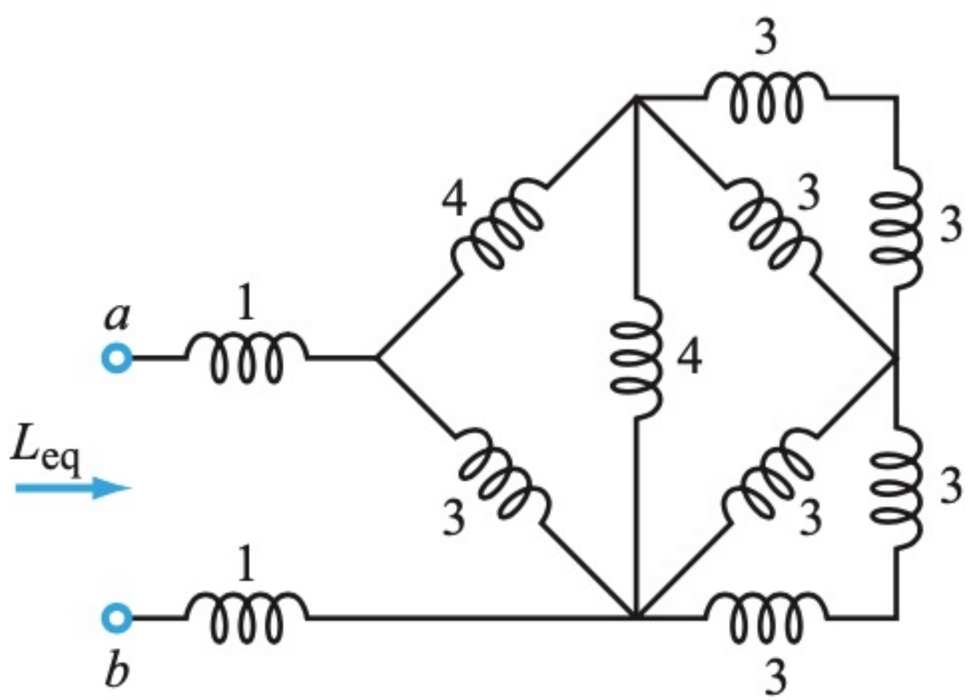
Extra Problem 4

Determine Leq at terminals (a,b).



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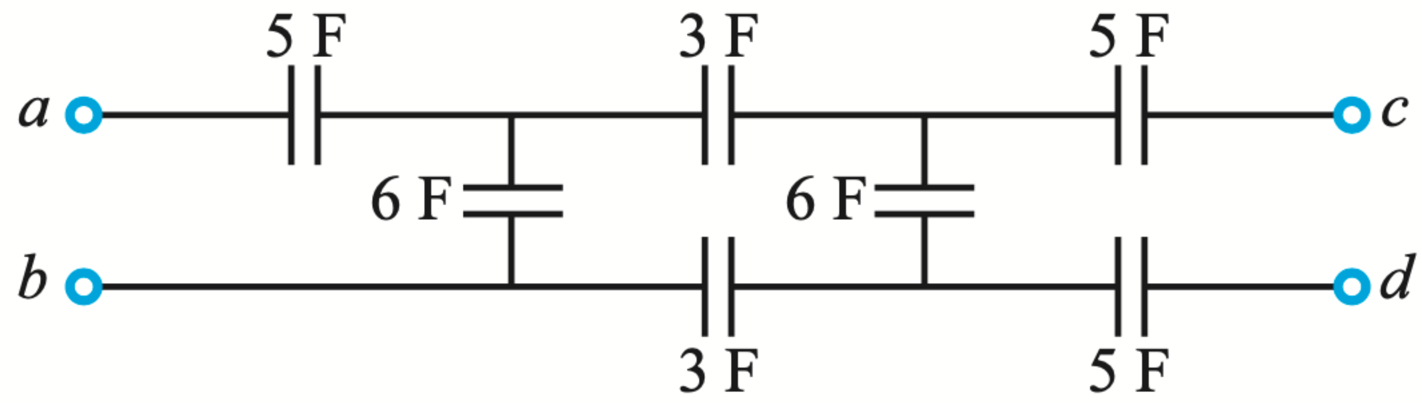
Extra Problem 5

Find the equivalent capacitance between nodes a and b. Then, a and c.



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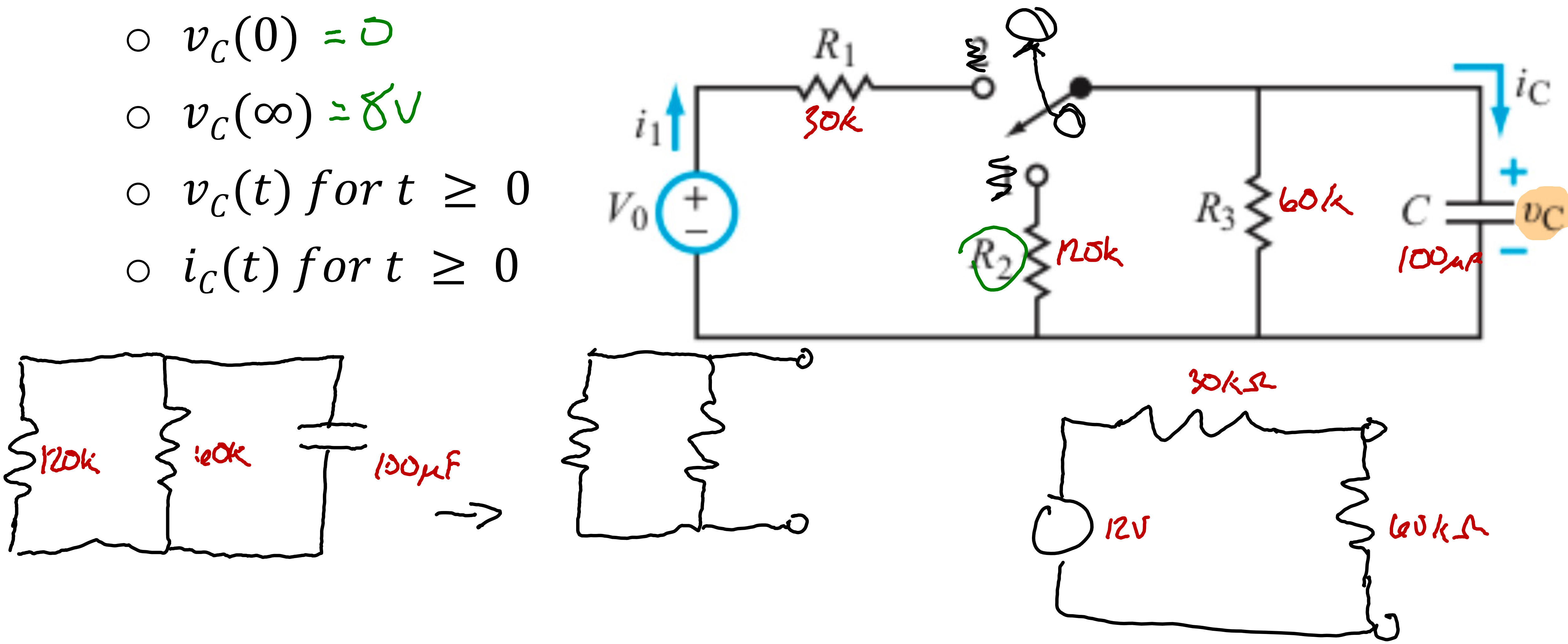
Extra Problem 6

The switch is at position 1 for a long time, and moved to position 2 at $t = 0$. Assume $V_0 = 12V, R_1 = 30K\Omega, R_2 = 120K\Omega, R_3 = 60K\Omega, C = 100\mu F$. Determine:

- $v_C(0)$ $=0$
- $v_C(\infty)$ $=8V$
- $v_C(t)\ for\ t \geq 0$
- $i_C(t)\ for\ t \geq 0$



$$\frac{60k}{30k+60k} 12 = 8V$$

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$$V_C(t) = 8 + (0-8)e^{-\frac{1}{2}t} = \boxed{8 - 8e^{-.5t}\ V}$$

$$8(1-e^{-.5t})\ V$$

$$R_{TH} = \frac{30 \cdot 60}{30+60} = \frac{180}{90} = 20k\Omega$$

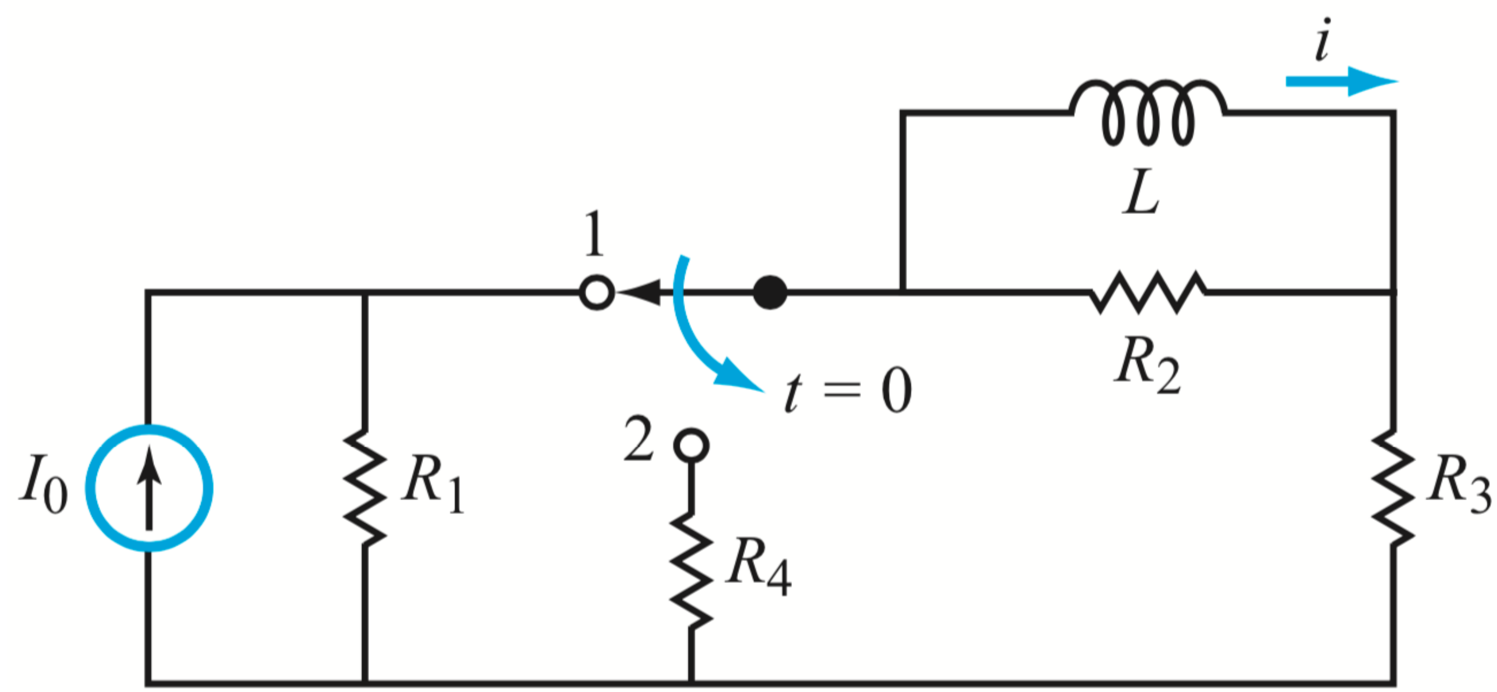
$$\tau = 20k \cdot 100\mu = 2$$

$$i_C(t) =$$

Extra Problem 7

The switch is at position 1 for a long time, and moved to position 2 at $t = 0$. $I_0 = 5A, R_1 = 2\Omega, R_2 = 10\Omega, R_3 = 3\Omega, R_4 = 7\Omega, L = 0.15H$. Determine:

- $i_L(0)$
- $i_L(\infty)$
- $i_L(t)\ for\ t \geq 0$
- $v_L(t)\ for\ t \geq 0$



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