

23S-EC ENGR-3-LEC-1 Quiz - 4

SANJIT SARDA

TOTAL POINTS

9 / 10

QUESTION 1

1 Part a 6 / 7

- 0 pts Correct

✓ - 1 pts *Wrong final answer, but got the inductor current*

- 3 pts Wrong/incomplete approach

- 7 pts Blank

QUESTION 2

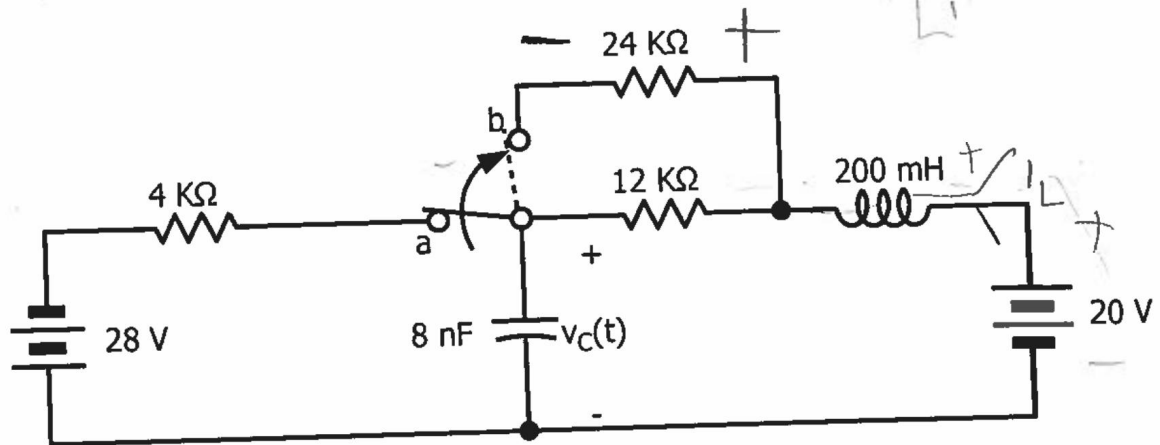
2 Part b 3 / 3

✓ - 0 pts Correct

- 3 pts Incorrect

EE3 Spring 2023
Quiz 4

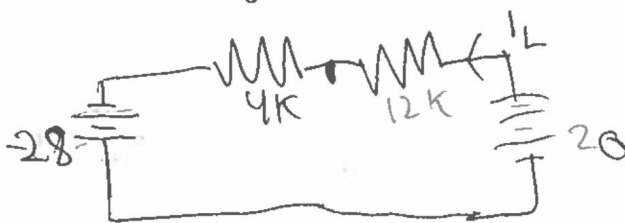
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The switch has been in position a for a Long Time. All transients have died out. At $t = 0$, the switch moves instantaneously to position b.

- At $t=0^+$, what is the voltage across the $24K\Omega$ resistor?
- Which end of the $24K\Omega$ resistor has the + sign?

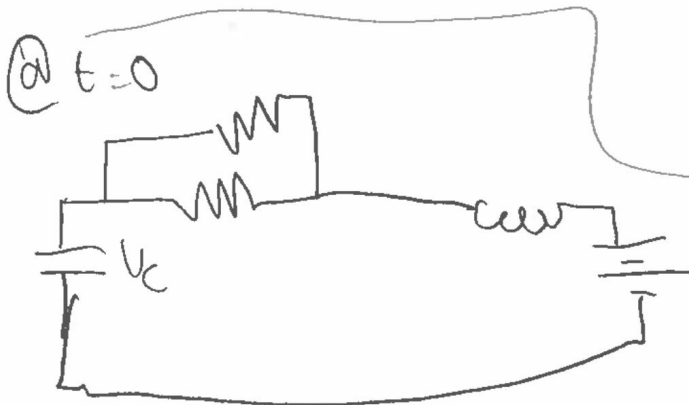
Analysis:
Long Time: Steady State



$$I_L = \frac{V_T}{R_T} = \frac{48}{16K} = \frac{3}{1000} \text{ A} = 3 \text{ mA}$$

$$\therefore I_L = 3 \text{ mA}$$

$$V_C = 20 - I_L \cdot 12K = 20 - 3 \cdot 12 = 20 - 36 = -16 \text{ V}$$



Answers

Ⓐ $t=0^+$, $V = 12K \cdot 3 \text{ mA} = 36 \text{ V}$

Ⓑ The right side.