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

SANJIT SARDA

TOTAL POINTS

100 / 100

QUESTION 1

1 Thevenin Voltage 50 / 50

✓ **- 0 pts** *Correct*

- 10 pts Partially incorrect

- 25 pts Mostly incorrect

- 50 pts Incorrect/Blank

QUESTION 2

2 Thevenin Resistance 50 / 50

✓ **- 0 pts** *Correct*

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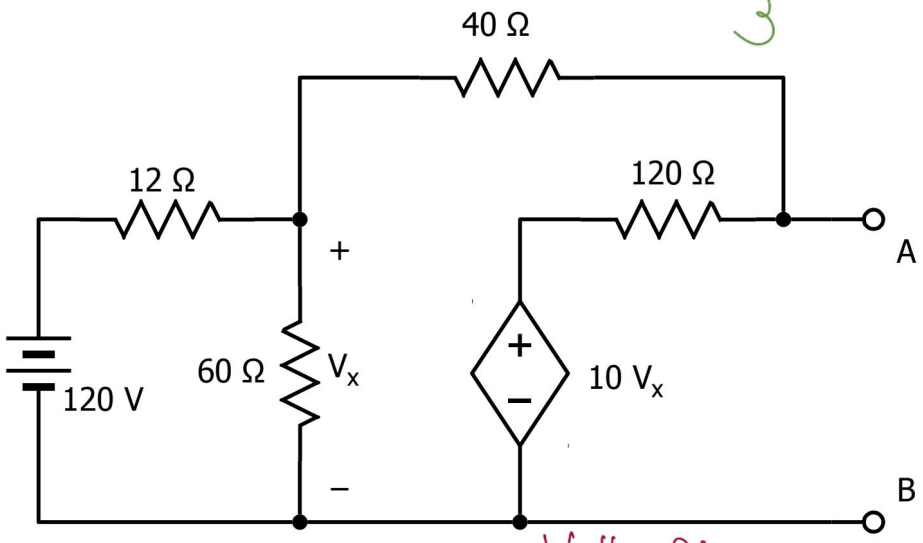
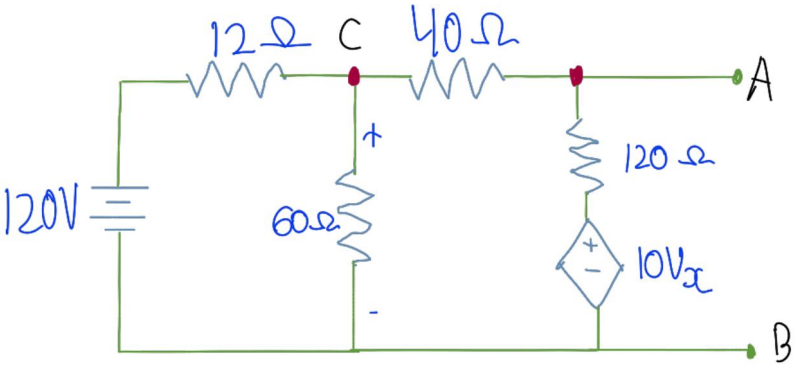
Open : A-B = 742.857

EE3 Spring 2023
Homework Problem 4

I = 26/3

Find the Thévenin Equivalent voltage and resistance of this circuit.





Open Voltage:

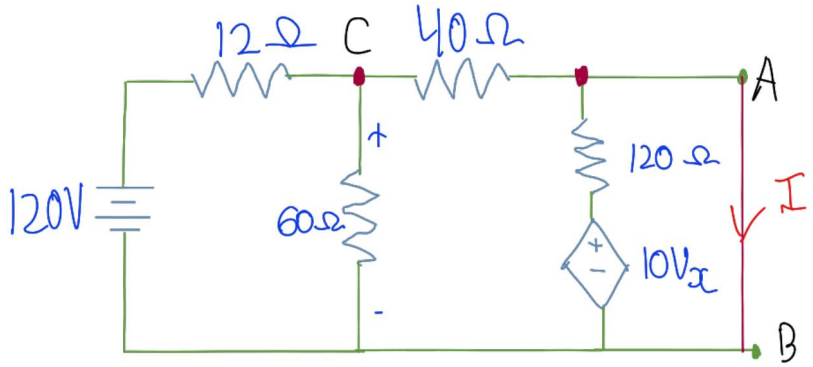
@ C: $\frac{C-120}{12} + \frac{C-A}{40} + \frac{C}{60} = 0$

@ A: $\frac{A-C}{40} + \frac{A-10C}{120} = 0$

Solving

Thevenin Voltage = A = 743V

Short Current



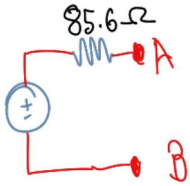
@ C: $\frac{C-120}{12} + \frac{C}{40} + \frac{C}{60} = 0$

@ A: $\frac{C}{40} + \frac{10C}{120} + I = 0$

Solving for I, the short circuit current, $I = \frac{26}{3}$ = Norton Current

V = 742V, $I = \frac{26}{3}$ ∴ $R = \frac{V}{3} = 85.6\,\Omega$

∴ Thevenin Eq :



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