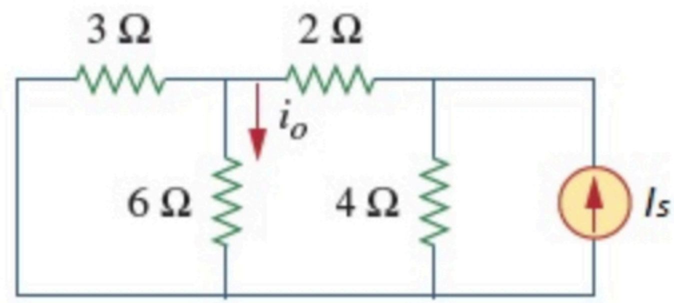
1.

value:
10.00 points

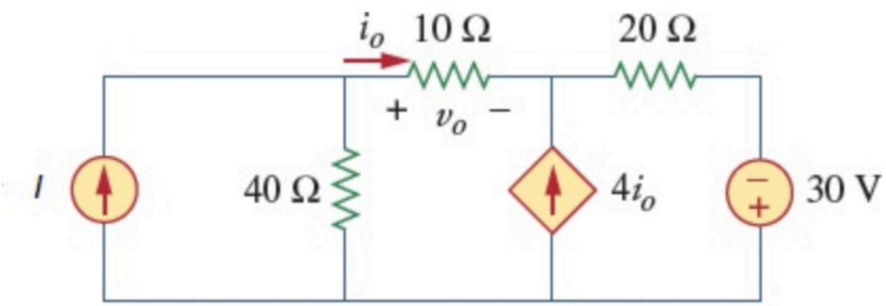
Assume I_o = 1 A and use linearity to determine I_o in the given circuit when I_S = 13 A.



The current I_o is equal to [ ] A.

2. value:
10.00 points

Use the superposition principle to determine the voltage across 10 Ω resistor due to 5-A current source and 30-V voltage source. Determine i_o and v_o in the given circuit where I = 5 A.

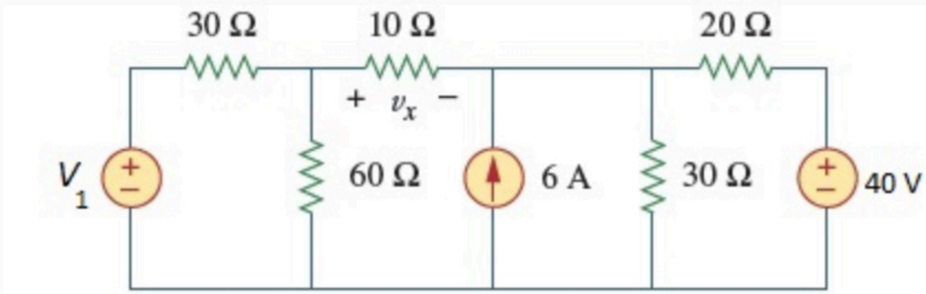


The voltage across 10 Ω resistor solely due to 5-A current source is ______ V.
The voltage across the 10 Ω resistor solely due to 30-V voltage source is ______ V.
The value of v_o is ______ V.
The value of i_o is ______ A.

3.

value:
10.00 points

Consider the circuit given below where V_1 = 114 V.



Use superposition to obtain v_x in the given circuit.

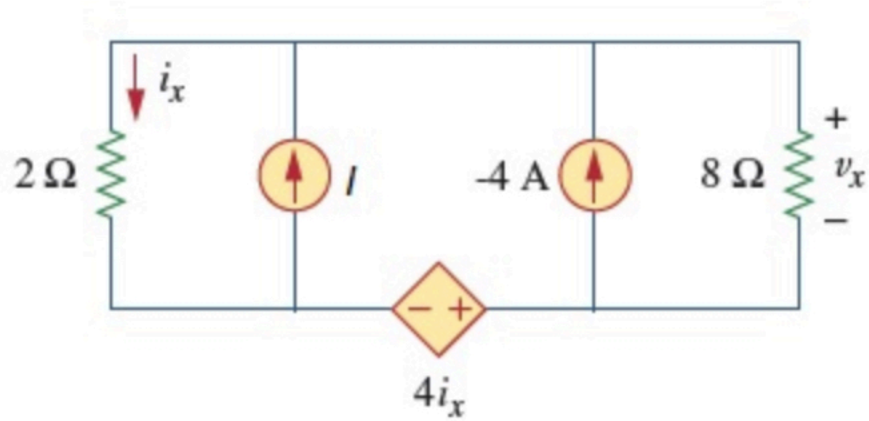
The value of v_x in the given circuit is ______ V.
Assume v_{x1}, v_{x2}, and v_{x3} are due to 114-V, 6-A and 40-V sources.

5.

value:

10.00 points

Use superposition to solve for v_x in the given circuit where I = 24 A.



The value of v_x in the given circuit is ______ V.

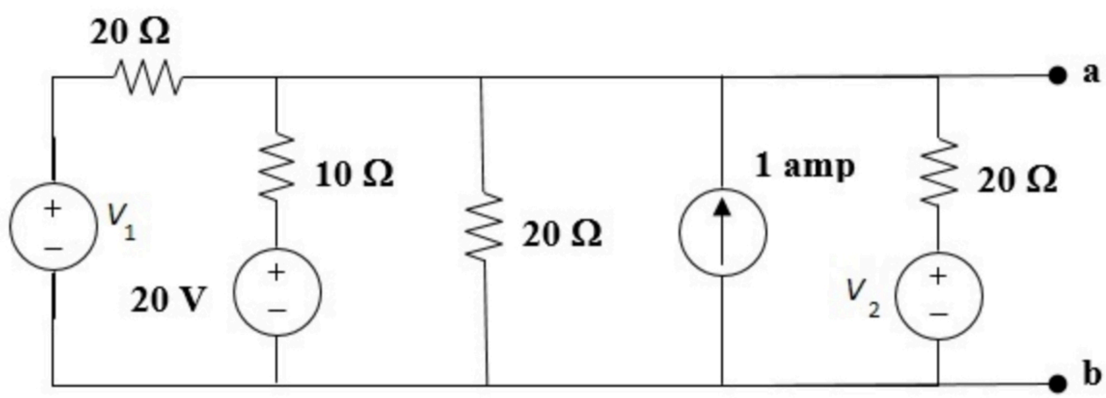
Assume v_1 and v_2 are due to 4-A and 24-A sources.

6.

value:

10.00 points

Consider the given figure where V_1 = 40 V and V_2 = 30 V. Use source transformations to reduce the circuit between terminals a and b to a single voltage source in series with a single resistor.

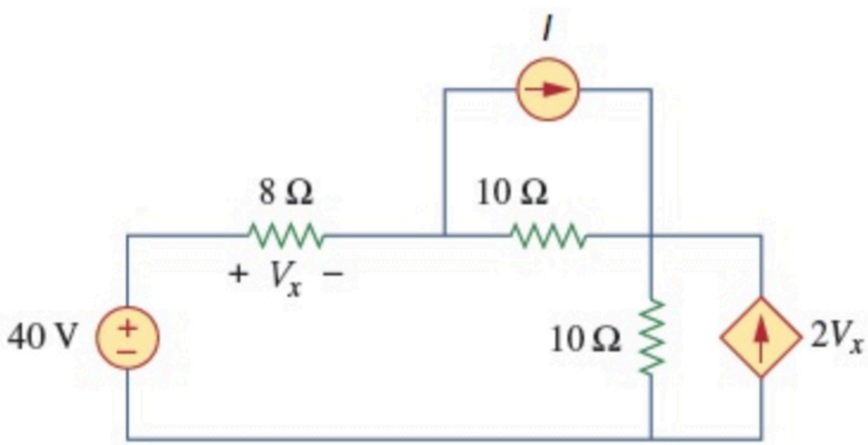


The equivalent resistor is [ ] Ω.

The equivalent voltage is [ ] V.

7. value:
10.00 points

Use source transformation to find the voltage V_x in the given circuit where $I = 9$ A.

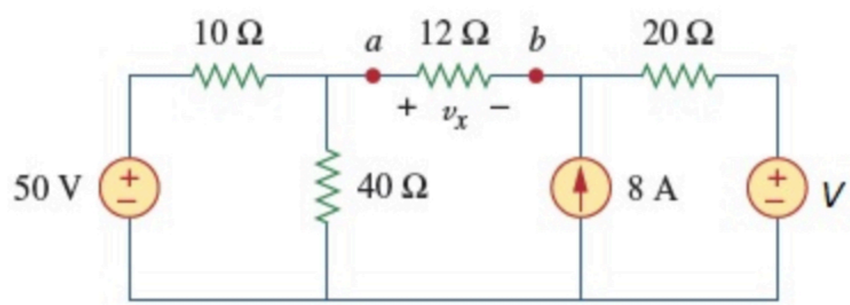


The voltage V_x in the given circuit is ______ V.

8.

value:
10.00 points

Apply source transformation to find v_x in the given circuit where V = 70 V.

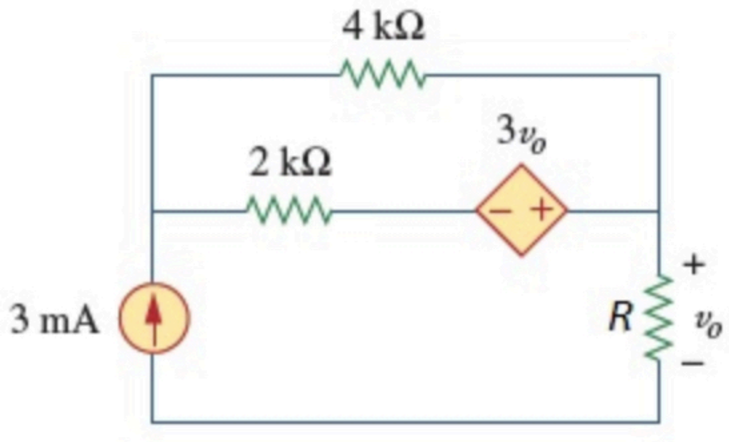


The value of v_x in the given circuit is ______ V.

9.

value:
10.00 points

Use source transformation to find v_o in the circuit in the following figure if $R = 5$ kΩ.

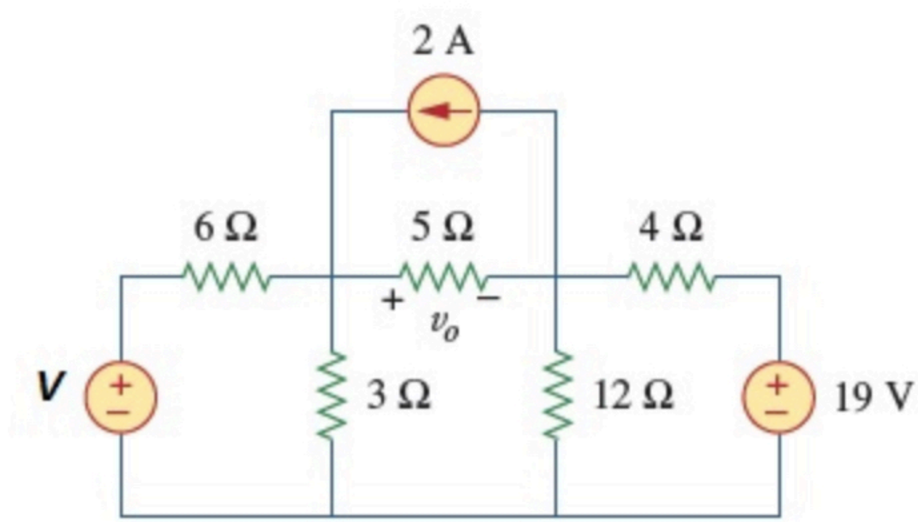


The voltage v_o is ______ V.

10.

value:
10.00 points

Use Thevenin's theorem to find v_o in the given circuit where $V = 8$ V.



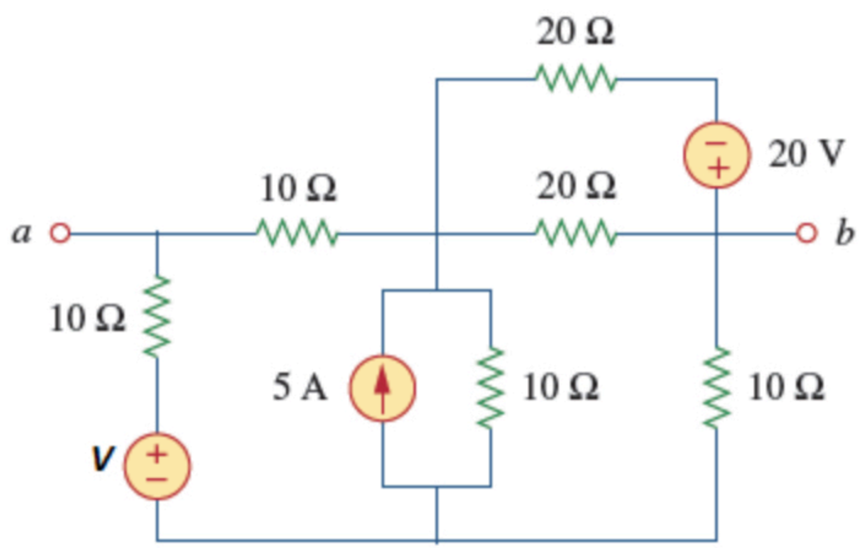
The value of v_o in the given circuit is [ ] mV.

11.

value:

10.00 points

For the circuit given below, find the Thevenin equivalent between terminals *a* and *b*, where $V = 42$ V.



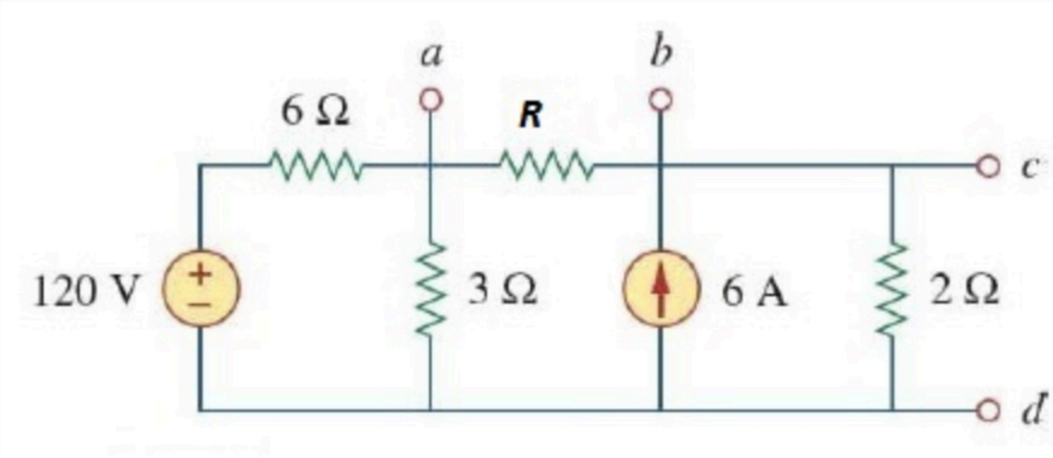
R_{Th} = [ ] Ω

V_{Th} = [ ] V

12.

value:
10.00 points

Given the circuit in the following figure, obtain the Norton equivalent as viewed from the following terminals if $R = 12\ \Omega$.



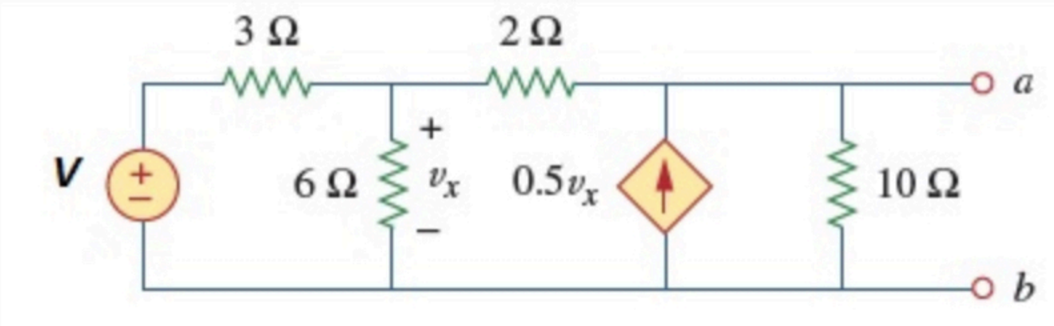
Terminals *a-b*

R_N = [ ] Ω
I_N = [ ] A

13.

value:
10.00 points

Consider the given circuit where $V = 85$ V.



Determine the Norton equivalent circuit at terminals *a*-*b* of the given circuit.

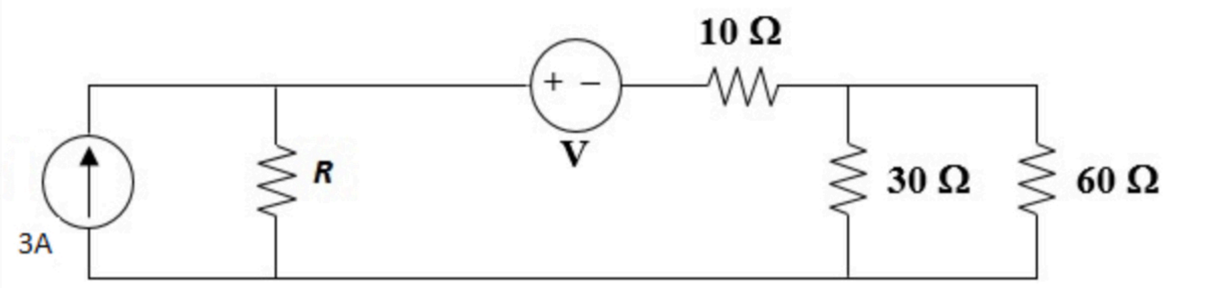
R_N = [ ] Ω

I_N = [ ] A

14.

value:
10.00 points

Consider the given circuit where $V = 80$ V.



Now let $R = 0\ \Omega$, $110\ \Omega$, and ∞. Calculate the power delivered to the 30-Ω resistor in each case.

The power delivered to the 30-Ω resistor when $R = 0\ \Omega$ is [ ] W.
The power delivered to the 30-Ω resistor when $R = 110\ \Omega$ is [ ] W.
The power delivered to the 30-Ω resistor when $R = \infty$ is [ ] W.