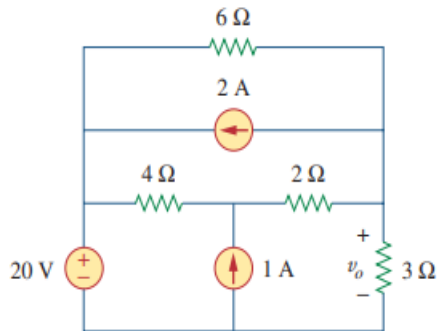


(Chapter-04) CIRCUITS THEOREMS

Practice Problems

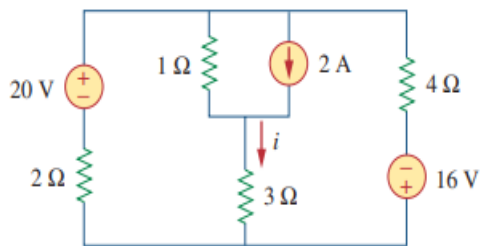
Superposition theorem:

Q1. Apply the superposition principle to find V_o in the circuit given below.



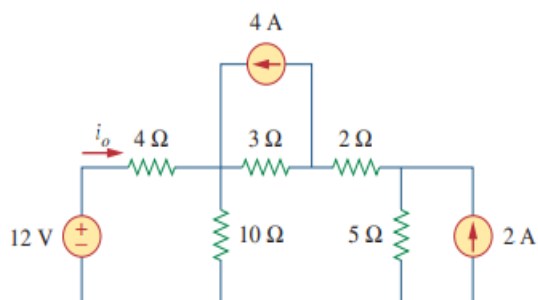
(Ans: 8V)

Q2. For the circuit, use superposition to find i . Calculate the power delivered to the 3ohm resistor.



(Ans: 1.875A, 10.55Watts)

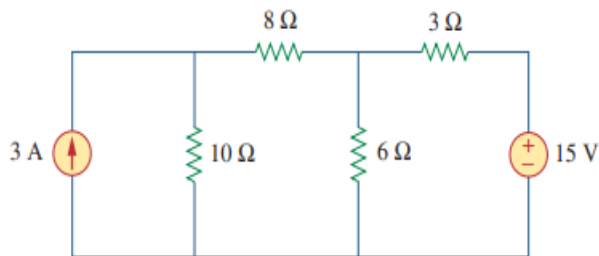
Q3. Given the circuit in Fig, use superposition to obtain i_o .



(Ans: 111.11mA)

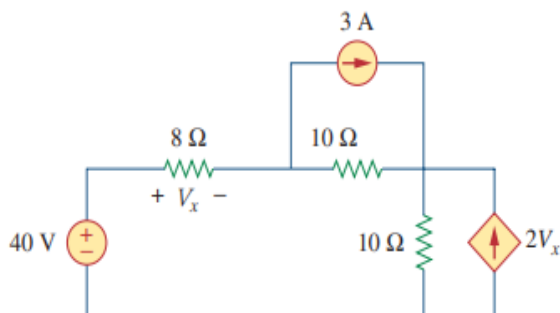
Source transformation:

Q1. For the fig given below, use source transformation to determine the current and power absorbed by the 8ohms resistor.



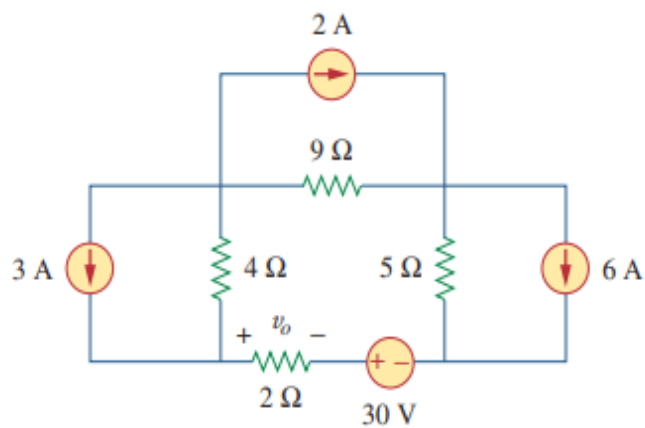
(Ans: 8Watts)

Q2. Use source transformation to find the voltage V_x in the circuit given.



(Ans: 2.978V)

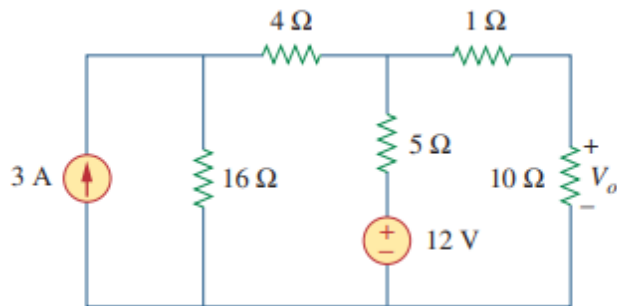
Q3. Obtain V_o in the circuit given using source transformation.



(Ans: -6.6V)

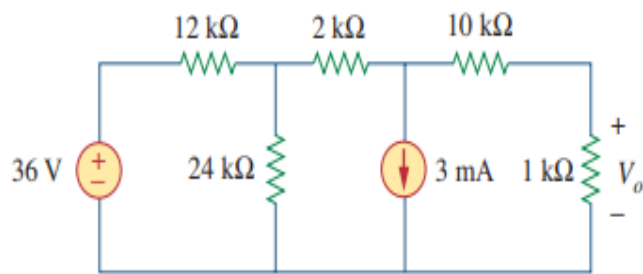
Thevenin's & Norton's theorem:

Q1. Apply Thevenin's theorem to find V_o in the circuit.



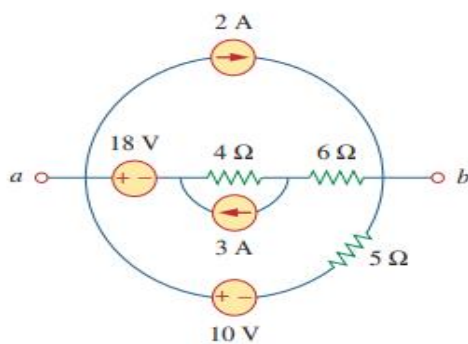
(Ans: 12.8V)

Q2. Use Norton's theorem to find V_o in the circuit.



(Ans: = -285.7 mV)

Q3. Find the Thevenin and Norton equivalent circuits at terminals a-b.

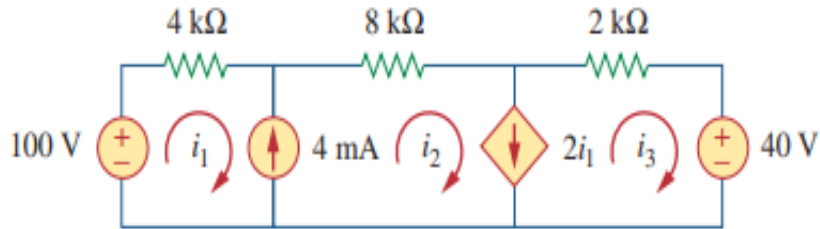


$I_n=3A$)

(Ans: $R_{th}=R_n=3.333\Omega$, $V_{th}=10V$,

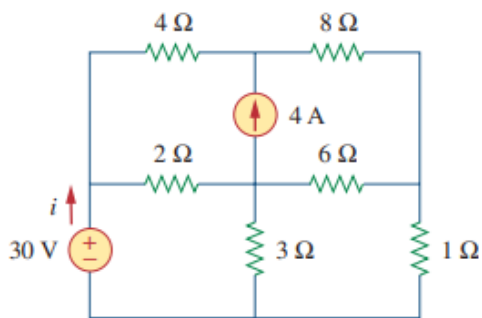
Super mesh analysis:

Q1. Find the mesh currents i_1 , i_2 and i_3 in the network of given figure.



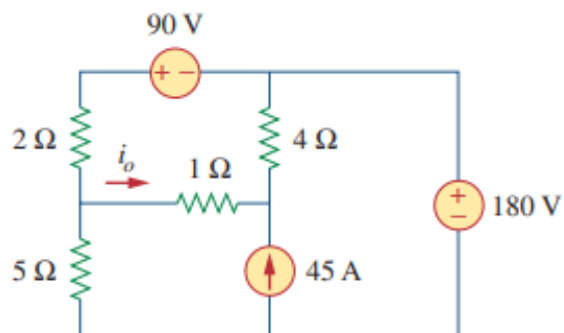
(Ans: 2mA, 6mA, 2mA)

Q2. Find current i in the circuit.



(Ans: 8.561Amps)

Q3. Apply mesh analysis to find the current i .



(Ans: -26Amps)