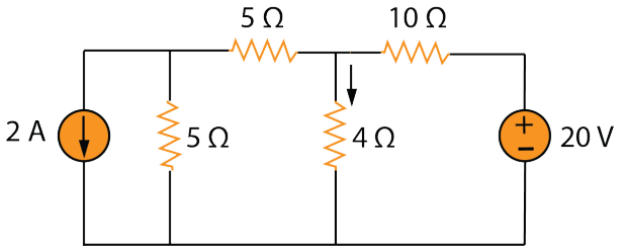
School of Electrical Engineering & Telecommunications

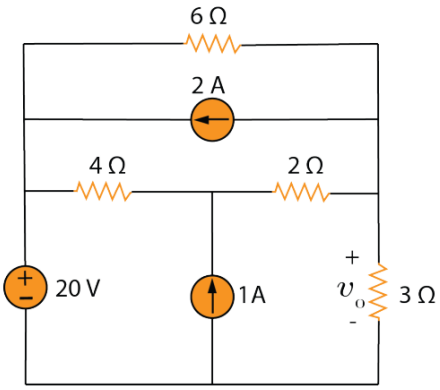
ELEC1111 Online Tutorial

Topic 3: Circuit Theorems

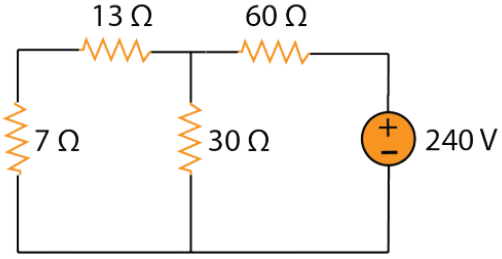
1. Using *source transformation*, find the current of the 4 Ω resistor of the following circuit.



2. Find the voltage across the 3 Ω resistor using the *superposition theorem* of the following circuit.



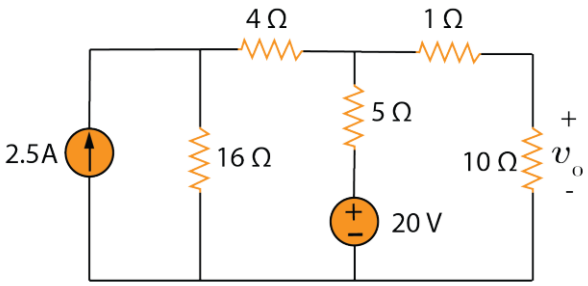
3. Consider the following circuit.



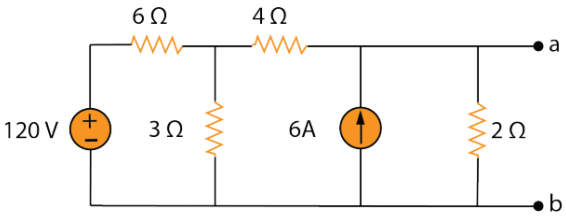
(a) Determine the Thevenin equivalent as seen by the 7 Ω resistor.

(b) Calculate the current through the 7 Ω resistor.

4. Calculate the voltage v_0 in the following circuit using *Thevenin's Theorem*.



5. Calculate the Norton equivalent as seen by terminals a-b.



6. Find the *maximum power* that can be delivered to the resistor *R* of the following circuit.