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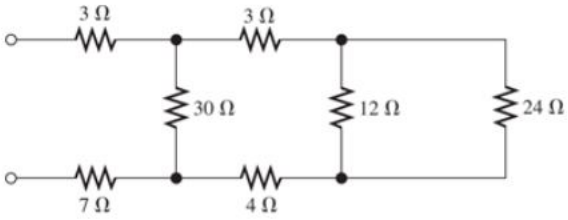
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

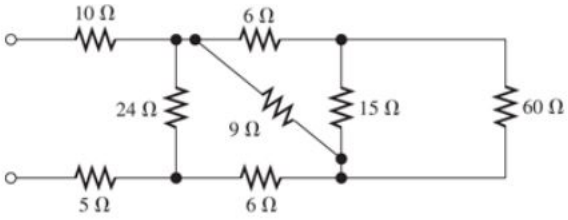
BEEE101L - Basic Electrical Engineering

Module 1 - DC Circuit Analysis - Practice Problem Set

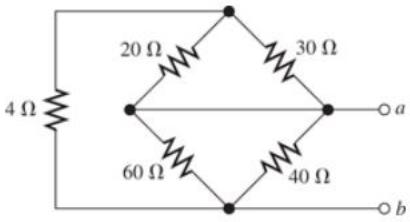
1. Find the total resistance from the input terminals in the following circuits.

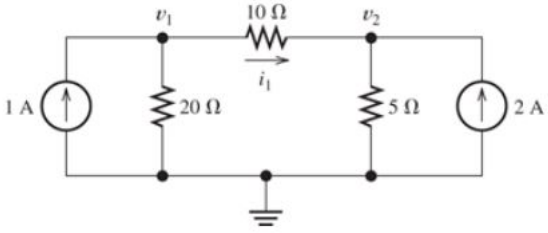


(a)

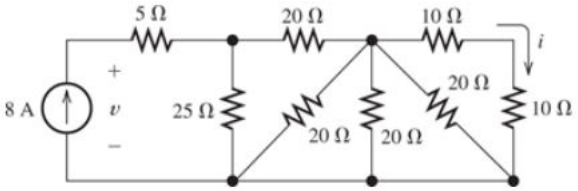


(b)

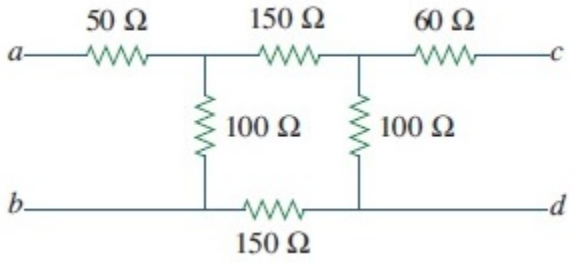




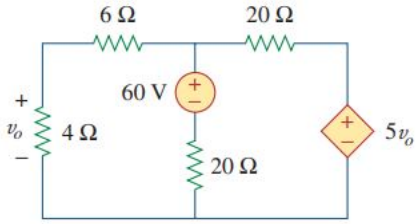
2. Find the equivalent resistance and calculate the total current in the circuit. Caculate the current in each branch by current division and voltage across each branch by voltage division.



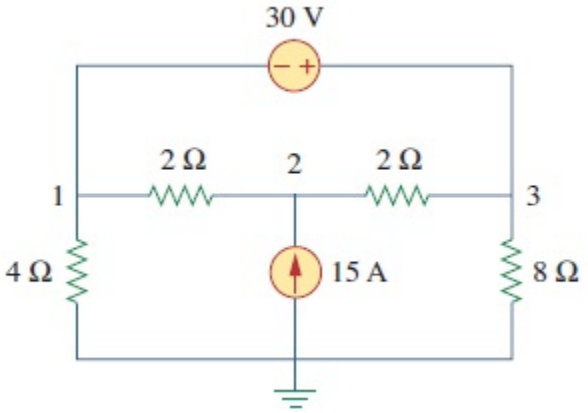
3. Find the equivalent resistance between the terminals a-b and c-d.



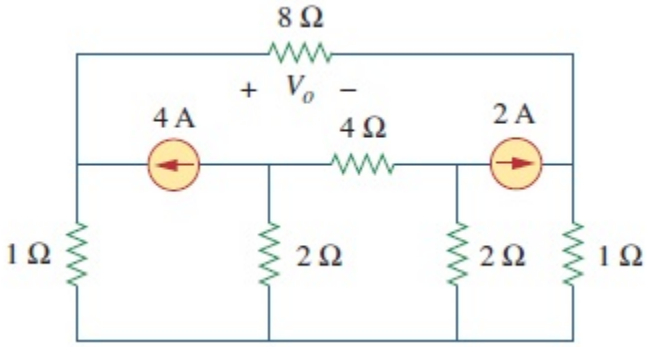
4. Find all the nodal voltages using nodal analysis and hence find V_0 in the circuit

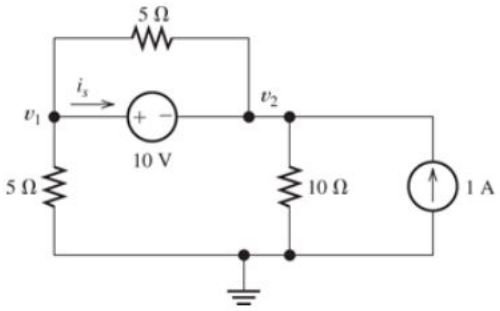


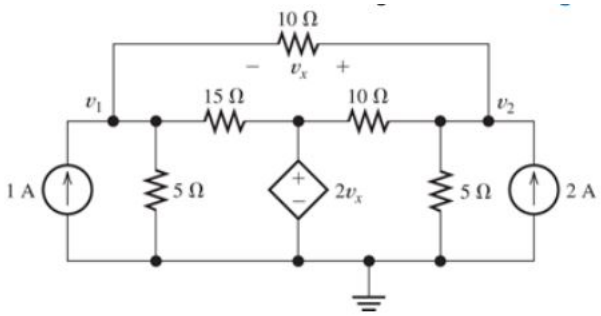
5. Determine the nodal voltages using nodal analysis



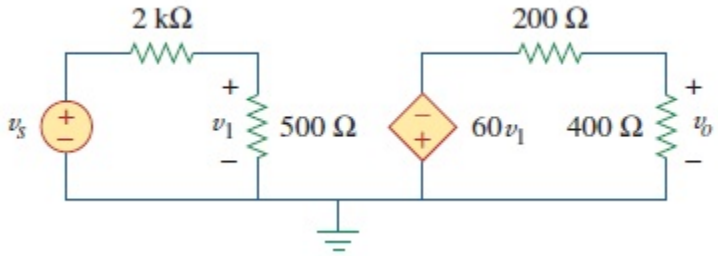
6. Find all the nodal voltages using nodal analysis.



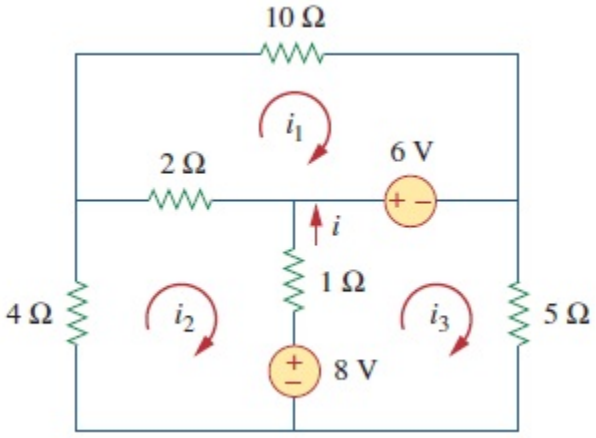




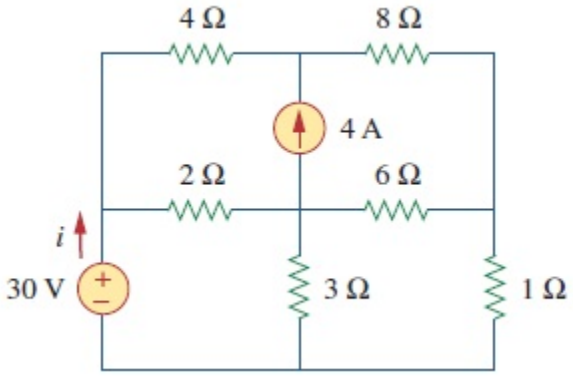
7. Find $\frac{V_o}{V_s}$ in the circuit

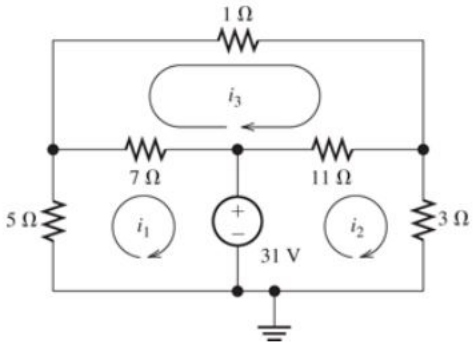


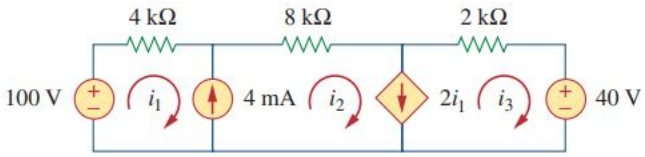
8. Apply mesh analysis to find all the mesh currents and hence find i in the circuit.



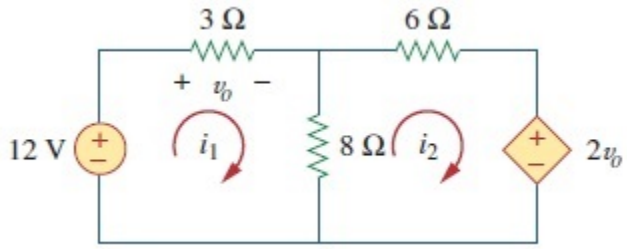
9. Apply mesh analysis to find all the mesh currents.

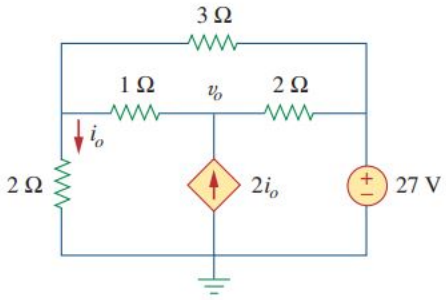




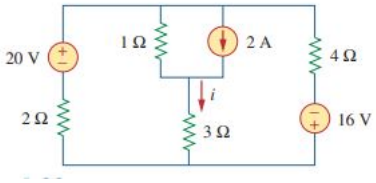


10. Find the mesh currents as shown in the circuit.

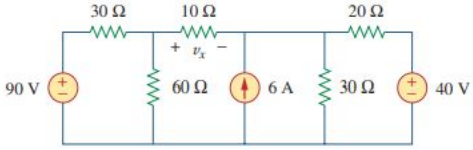




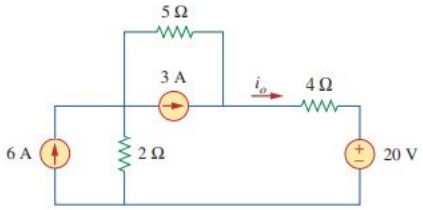
11. Find i in the circuit, using superposition principle.



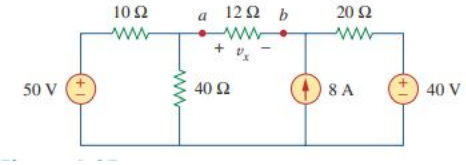
12. Find v_x in the circuit, using superposition principle.



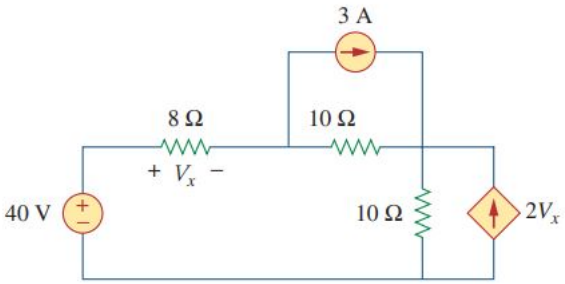
13. Find i_o in the circuit, using source transformation.



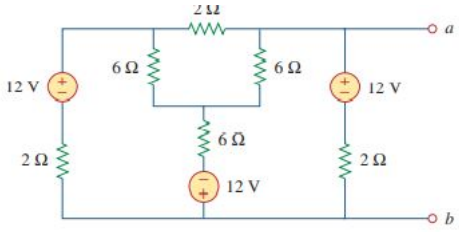
14. Find v_x in the circuit, using source transformation.



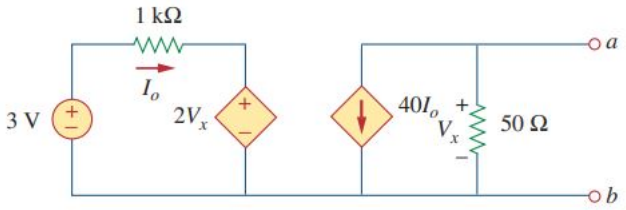
15. Find v_x in the circuit, using source transformation.



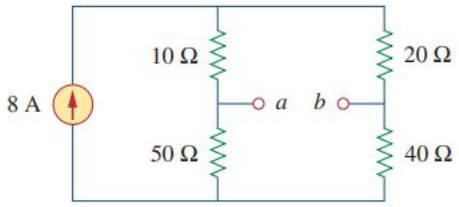
16. Find the Thevenin and Norton equivalent at the teminals $a - b$.



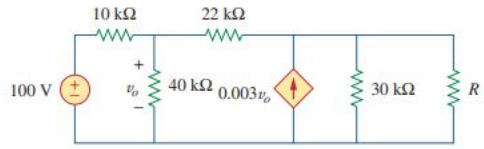
17. Find the Thevenin and Norton equivalent at the teminals $a - b$.



18. Find the Thevenin and Norton equivalent at the teminals $a - b$.



19. Find the maximum power transferred to the resistor R in the circuit.



20. Find the maximum power transferred to the 10Ωresistor in the circuit.