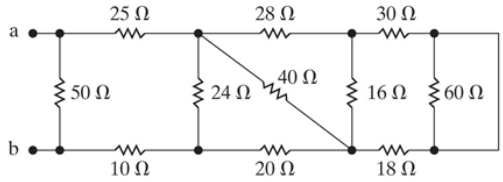
Homework 2

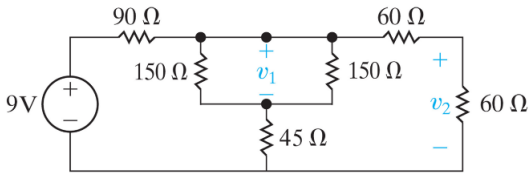
Answer all the required problems for each assignment and round your final solutions to two decimal places, if needed. The optional problems will not be graded but may show up on an exam.

Assignment 1

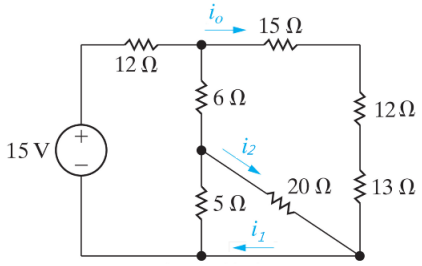
1. Find the equivalent resistance R_{ab} for the following circuit.



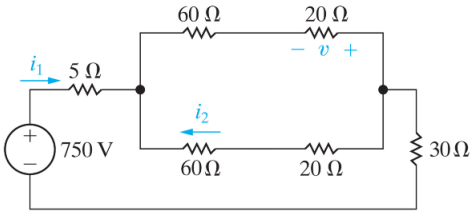
2. Determine v_1 and v_2 in the circuit below by using voltage and/or current division.



3. Determine $i_o, i_1, and\ i_2$ in the following circuit by using voltage and/or current division.



4. In the following circuit,
   a. Find $i_1, i_2, and\ v$.
   b. Find the power delivered to the circuit and the power absorbed by the 30 Ω resistor.

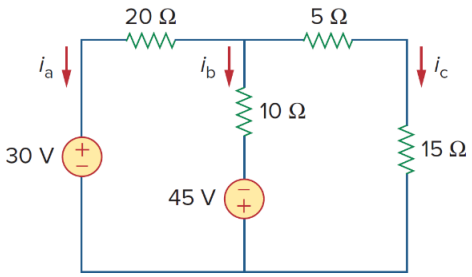


Optional Problems

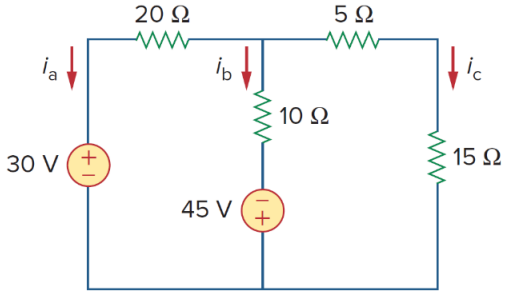
3.7, 3.10, 3.31

Assignment 2

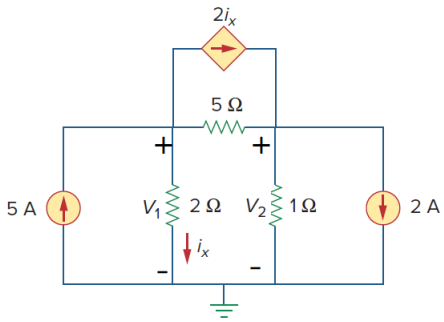
1. Use the node-voltage method to find the current i_a, i_b, and i_c and the power associated with the 30 V voltage source as shown in the following circuit. (25 pts)



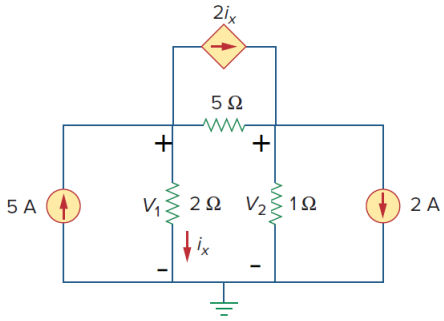
2. Use the mesh-current method to find the current i_a, i_b, and i_c and the power associated with the 30 V voltage source as shown in the following circuit. Compare the solutions in Prob.1 and Prob.2. Then indicate which method is better for the same circuit and the same questions and explain why. (25 pts)



3. Use the node-voltage method to find V_1 and V_2 in the circuit below and the power associated with the 2 A current source. (25 pts)



4. Use the Mesh-current method to find V_1 and V_2 in the circuit below and the power associated with the 2 A current source. (25 pts)



Optional Problems

4.6, 4.20, 4.42