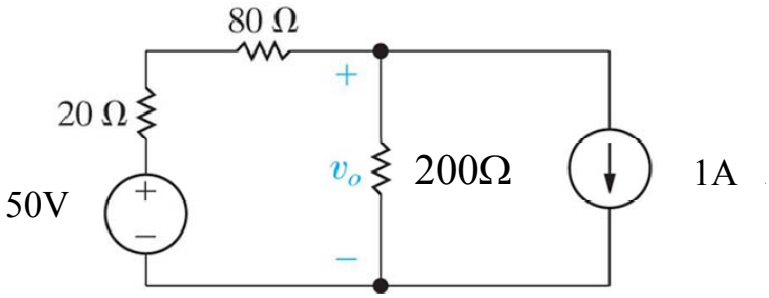
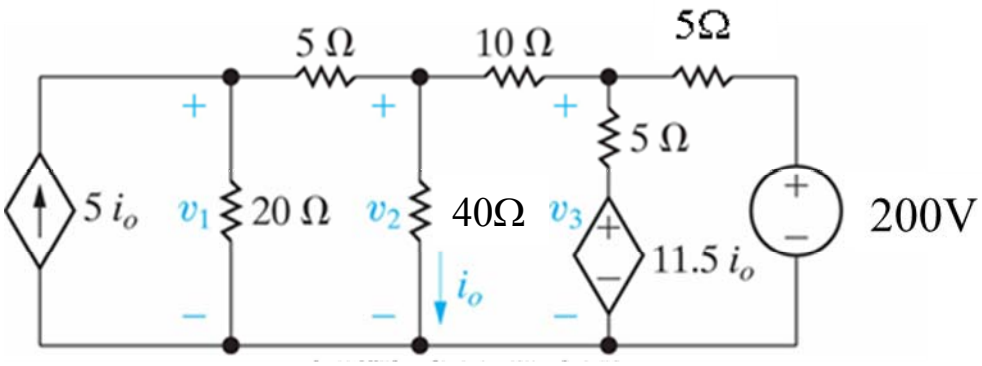
ELEN 50 Winter 2017 Problem Set #2
(due before class 2/3)

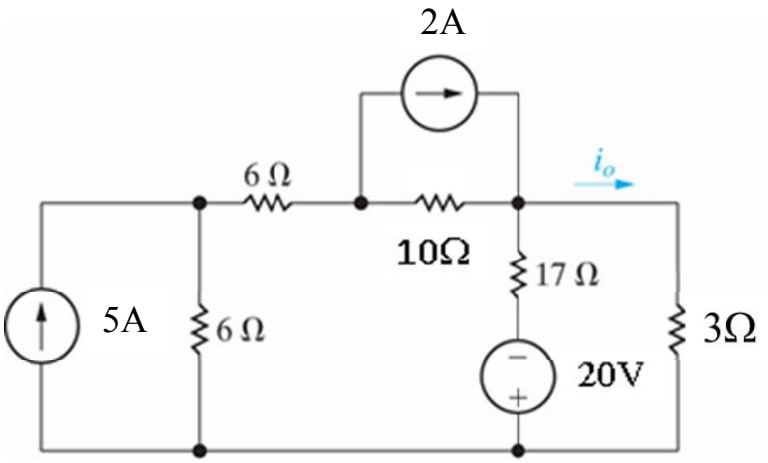
1. Use the node voltage method to find v_0 in this circuit. Show your choice of reference node.



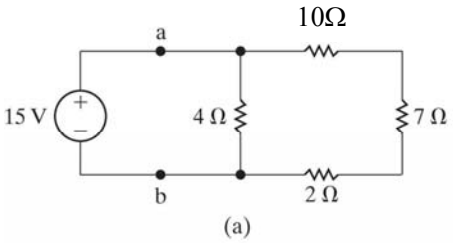
2. Find the node voltages v1, v2, and v3 in this circuit. Show your choice for a reference node and notice the circuit contains both a dependent current and voltage source. You can show numerical solutions using MATLAB but you must write down the node voltage equations in standard form.



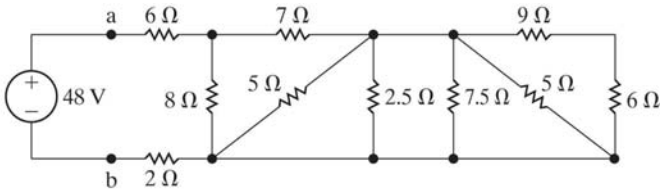
3. Use a series of source transformations to find i_o in this circuit:



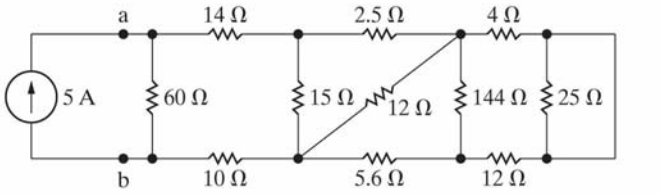
4. Find the equivalent resistance R_{ab} for these circuits:



(a)



(b)



(c)

5. Use the node voltage method to find the power developed in the 20V source. Is there a supernode in this circuit? If so, identify it and show your choice of a reference node.