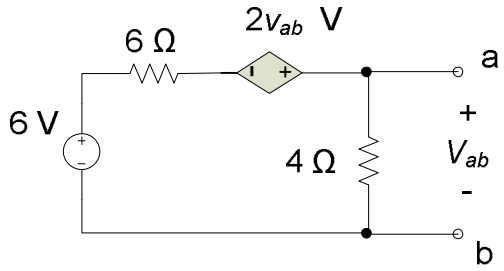
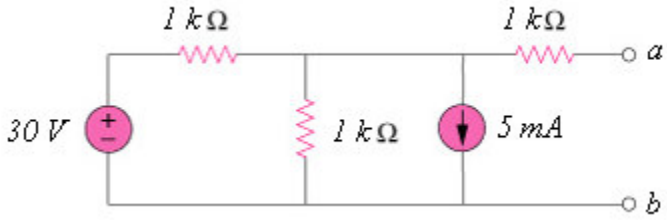
ECE203—DC Circuits
Review for Test 3

1. For the following circuit:

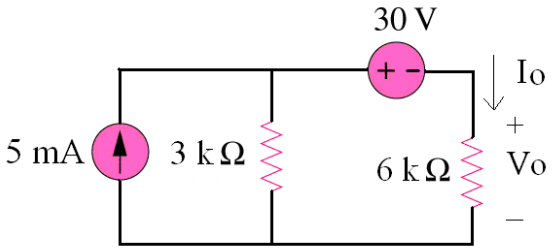


a) Use the test source method to find R_{th}. (12 Ω)
b) What is the value of a load resistor placed across terminals a-b for maximum power transfer to the load? (12 Ω)
c) Compute the maximum power transferred to the load.(3W)

2. For the following circuit, find the maximum power possible delivered to the load.

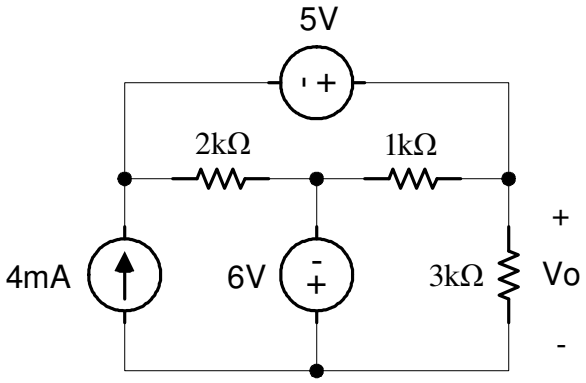


3.For the following circuit use the concept of superposition,

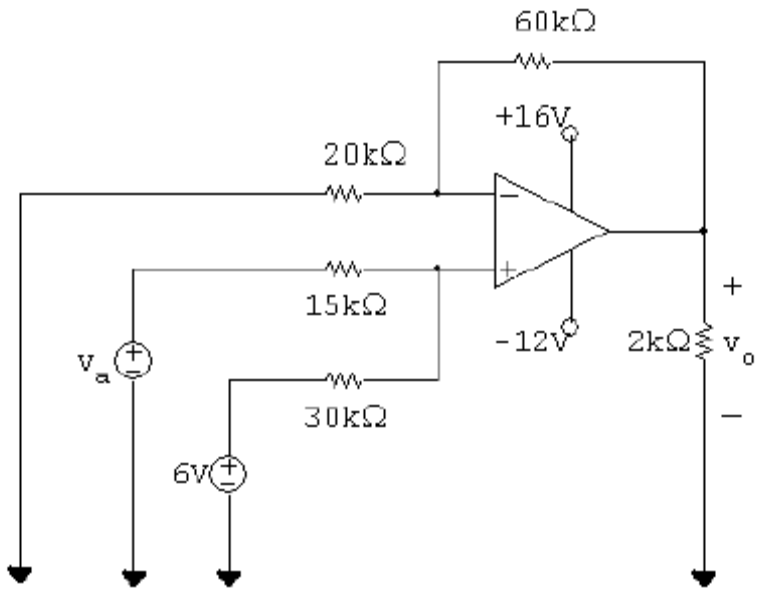


a. Calculate the voltage, Vo, due to the 5mA current source acting alone.(10V)
b. Calculate the voltage, Vo, due to the 30V voltage source acting alone.(-20V)
c. Using the solutions to parts a and b, calculate the total voltage, V_o .(-10V)

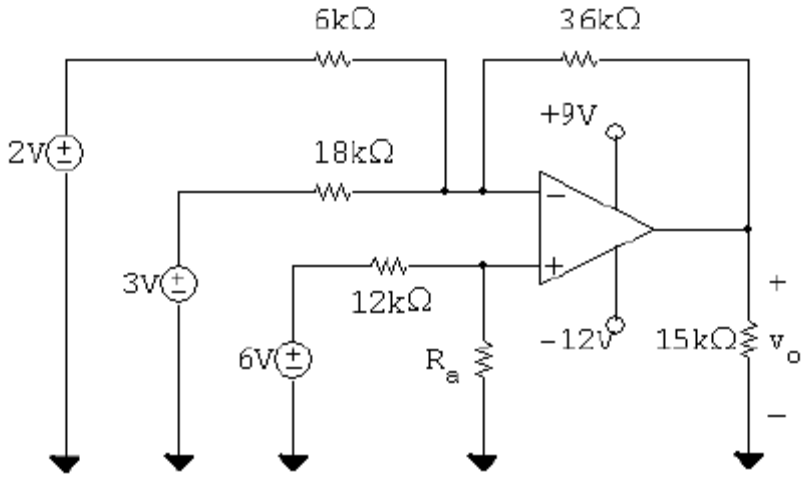
4. Using the concept of superposition to find Vo.



5. Find the range of values for the voltage v_a such that the output voltage v_o does not saturate and the op amp remains in its linear region of operation



6. Find the range of values for the resistor R_a such that the output voltage v_o does not saturate and the op amp remains in its linear region of operation



7. Find V_{o1} and V_{o2}.

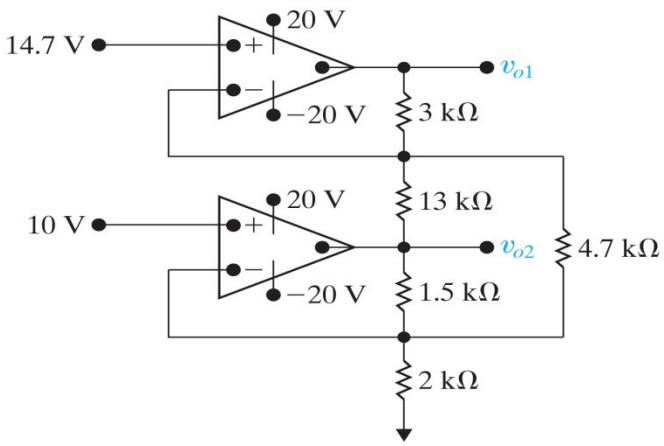
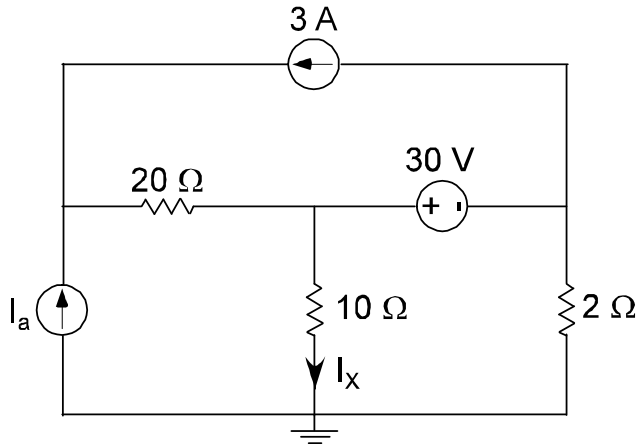
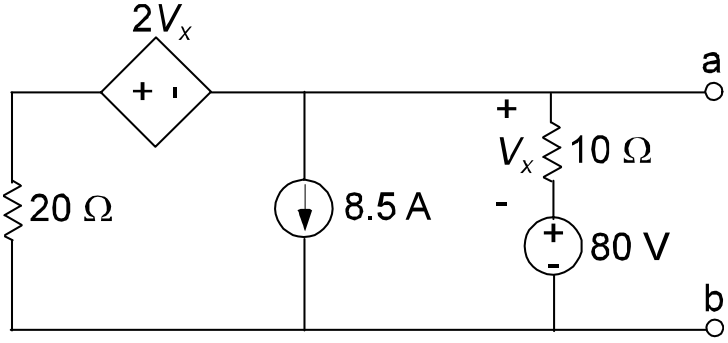


Figure: 05-18-306P5.39

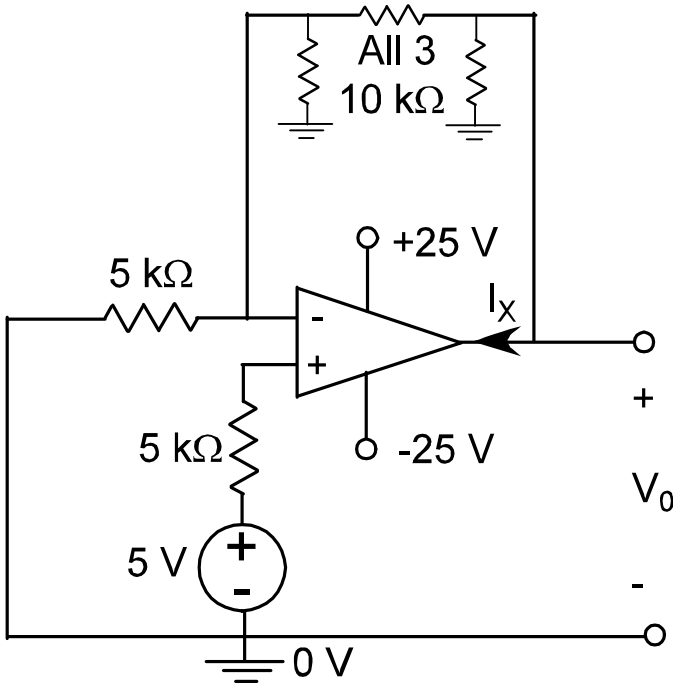
8. Use superposition to determine the value of I_a that will make I_x = 4.5 A. What percentage of the 3 A source flows in I_x?



9. Determine the maximum power that can be drawn out of the terminals a—b.



10. Determine V_0 and I_X.



11. Ditto.