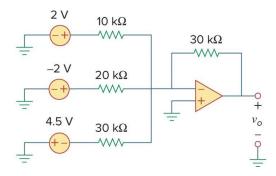
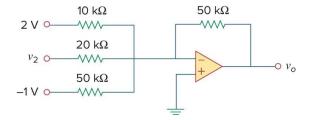
## **Electric Circuits**

Homework Set 11

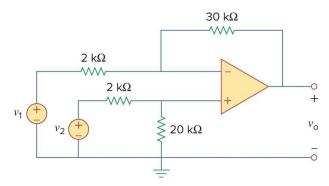
1. Determine the output of the summing amplifier shown below.



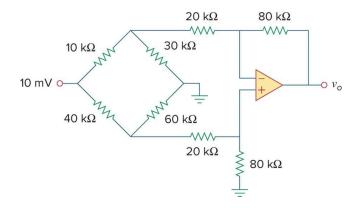
2. For the op-amp circuit below, determine the value of  $v_2$  in order to make  $v_0$  = -16.5 V



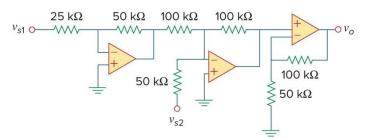
3. The following circuit is for a difference amplifier. Find  $v_0$  given that  $v_1 = 1$  V and  $v_2 = 2$  V.



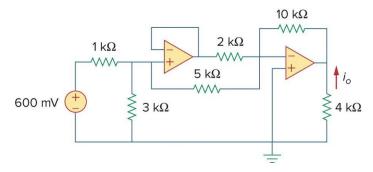
4. The circuit below is a differential amplifier driven by a Wheatstone bridge. Find  $v_o$ .



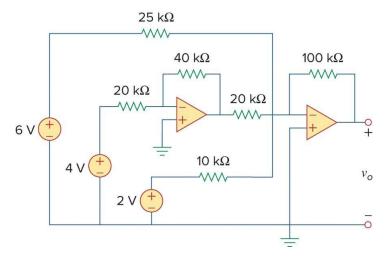
5. \*\*Find an expression for  $v_o$  in terms of  $v_{s1}$  and  $v_{s2}$  in the op-amp circuit below.



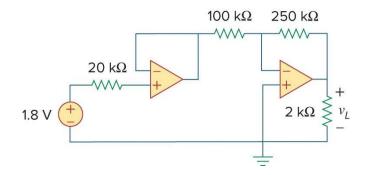
6. Calculate  $i_0$  in the following op-amp circuit.



7. For the circuit below, find  $v_o$ .

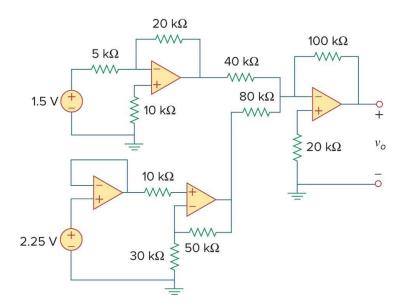


8. Find the load voltage  $v_L$  in the following circuit.

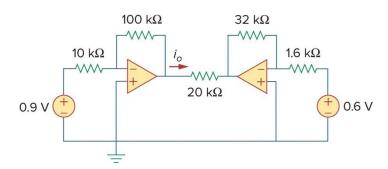


Use Micro-Cap or Multisim to solve the following circuits. Be sure to print out your results to turn in.

9. Evaluate the following circuit to find  $v_o$ .



10. Evaluate the following circuit to find  $i_o$ .



11. Evaluate the circuit below to find  $v_o$ .

