## 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 $v_{o}=-16.5 \mathrm{~V}$

3. The following circuit is for a difference amplifier. Find $v_{o}$ given that $v_{1}=1 \mathrm{~V}$ and $v_{2}=2 \mathrm{~V}$.

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 $v_{s 1}$ and $v_{s 2}$ in the op-amp circuit below.

6. Calculate $i_{o}$ 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 $v_{o}$.


