

EE 206: Homework #6

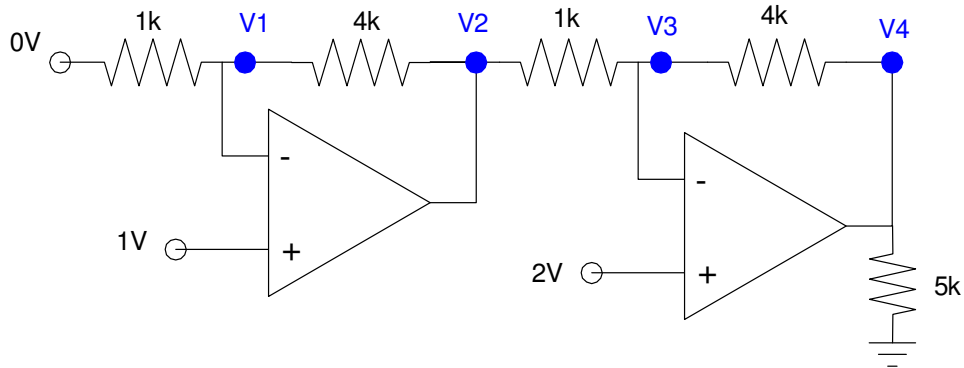
Op Amps. Due Monday October 12th

Please make the subject "EE 206 HW#1" if submitting homework electronically to lauren.n.singelmann@ndsu.edu (or on blackboard)

Op Amps

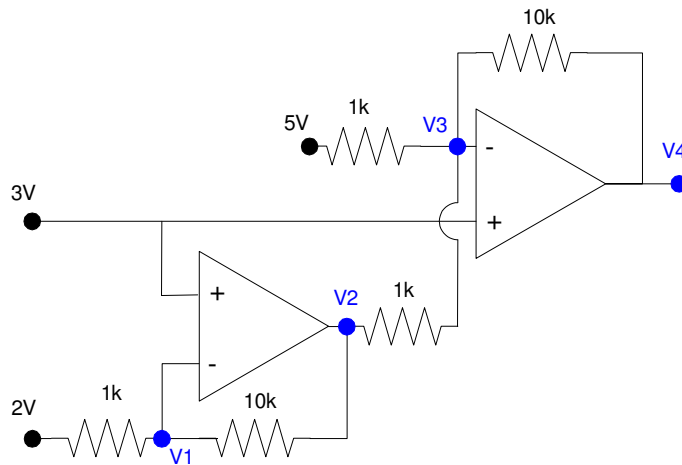
1) Write the voltage node equations for the following op-amp circuit. Assume ideal op-amps.

- Solve for V_1 , V_2 , V_3 , and V_4



2) Write the voltage node equations for the following op-amp circuit. Assume ideal op-amps.

- Solve for V_1 , V_2 , V_3 , and V_4 assuming ideal op-amps



Amplifiers and Mixers

3) Design a circuit to implement

$$Y = 3A + 4B$$

4) Design a circuit to implement

$$Y = 3A - 4B$$

5) Let R be a temperature sensor with the temperature - resistance relationship

$$R = 1000 \exp\left(\frac{3905}{R+273} - \frac{3905}{298}\right) \Omega$$

where T is the temperature in degrees C. Design a circuit which outputs

- -10V at -10C
- +10V at +10C

6) Simulate your circuit in problem #5 for R changing from -10C to +10C in CircuitLab