Homework #10: Op-amps and Signal Conditioning

1. Consider the schematic shown to the right.
   a. If $R_o = R_1 = 10 \, \text{k}\Omega$, and $R_2 = 30 \, \text{k}\Omega$, $R_3 = 1 \, \text{k}\Omega$, what is $V_o$? Assume the supply voltages to the op-amps are $\pm 15 \, \text{V}$. Show how you arrive at your answer.

2. Design an amplifier with a gain of 1000 to amplify the signal from a sensor having an output impedance of 100k.

3. What is wrong with the following circuit? Assume the supply voltages to the op-amps are $\pm 15 \, \text{V}$.

4. Design a signal conditioning circuit to take the signal on the left and modify it to look like the signal on the right.