1. (10 pts) Text, problem 5.11. (Hint: recall the principle of superposition, which says that for a linear system acted on by several inputs, the output of the system can be determined by summing the outputs due to each input considered individually. See section 5.8 for an example of how superposition is applied.)

2. (10 pts) Visit Texas Instrument’s Op-Amp Gain and Offset Component Calculator (http://focus.ti.com/docs/toolsw/folders/print/allamplifiertools.html) and design a single-stage amplifier to condition the temperature sensor that we used as an example in class on Thursday. As you may recall, the temperature sensor output 0.15 V at 0 °C and 0.65 V at 50 °C. What is desired at the output of your amplifier is a signal that goes from 0V at 25 °C to 2.5 V at 50 °C (hence at 0 °C your amplifier should output –2.5 V). Assume that a reference voltage of 5 V is available and use E24 resistors. Include a printout showing your design with resistor values and accuracy. What will the actual output of your amplifier be at 25 °C (assuming E24 resistor sequence)? What is meant by the terms “E96” and “E24” resistor sequence?

3. (10 pts) Text, problem 5.13. Remember that the voltage across an inductor is Ldi/dt