Lab 2 - Resistors and Op Amps

Music 250a - CCRMA 2002

DUE WEDNESDAY OCT 16, 2002

1. Resistor Network:

Make a network with an equivalent resistance of 9k ohm +/- 1% using our standard resistors. Try to use as few resistors as possible. Check the accuracy of your network with a multimeter. (Potentiometers are not allowed in the network).

2. Passive Mixer:

Make a passive mixer with 2 inputs and 1 output so that the gain from input 1 to the output is 1/10 and the gain from input 2 to the output is 2/10. In other words, \( V_{\text{out}} = 0.1V_1 + 0.2V_2 \). Use only 3 resistors in your network. Test your network using a power supply as input and a multimeter to measure the voltages. Note that when you are testing one of the inputs, you must set the other input to ground. If you need a hint, ask the TA's.
3. Single supply op amp:

**Build the following circuit:**

- Pot A
- Gain control
- Pot B
- 1k
- 50k
- 1k
- +5V
- +5V
- scope
- try both the LF353 and the KA358

   a) Adjust pot A for gains of 1, 10 and 40. What happens to the output? b) Adjust pot B so peak-to-peak output is 2V, 5V, maximum without overloading, and overloading. What happens when you overload?
   c) Run a frequency response test at various outputs. Observe the slew rate overload.
   d) Repeat the above tests with the LF353 dual-supply op amp.

4. (Optional) Dual-supply op amp:

Repeat #3 using an LF353 with +12 and -12 supply voltages. You will need to use one of the “old” prototyping boards and power supplies in the lab. Use the following circuit: