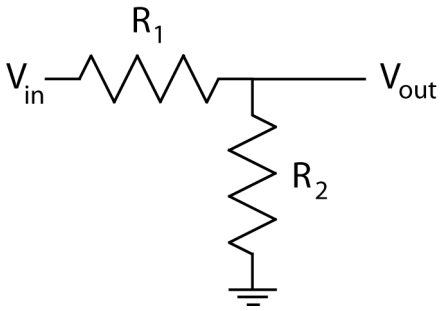
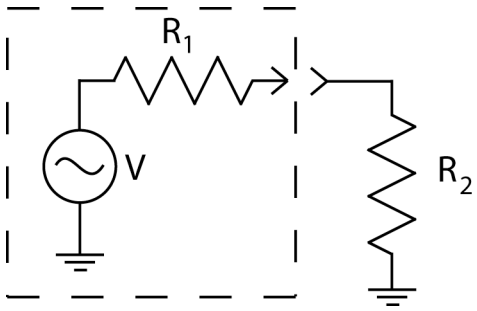
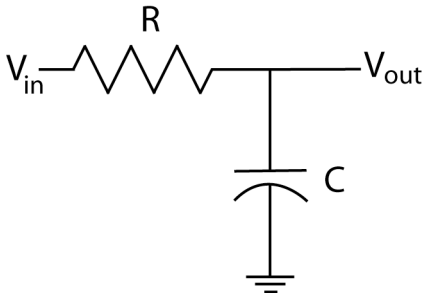
Music 192A Homework 1



1. A pad is a resistive network (voltage divider) that is used to attenuate signals. To produce 10 dB of attenuation, what value of R_2 is required if R_1 is 1000 ohms? (Ignore the effects of external signal connections.)



2. You connect the output of a device with an output (or source) impedance of 500 ohms (R_1 above) to the input of a device with an input impedance of 5000 ohms (R_2 above). How much signal is lost in the transfer (in dB)? How much is lost if the input impedance is 20,000 ohms? 1000 ohms?



3. Using the voltage divider idea, what will the output voltage of the above circuit do as the frequency of a sine wave input signal is increased?

4. The Tascam 80-8 recorder manual states that the output voltage is .3 V, corresponding to a reading of -10 dB (rms), when the meter reads 0 VU. What is the reference level they're using: is it dBu, dBV, or ?

5. We want to connect the 80-8 recorder to a mixing console that defines its input level as +4 dBu. With the mixer channel set to unity gain, what will the mixer VU meter read when the 80-8 meter reads 0 VU?

6. What peak-to-peak voltage swing is required for a circuit to handle a 0 dBu (rms) sine wave pass undistorted? (The power supply must provide at least this much voltage to the circuit to avoid distorting the signal.)