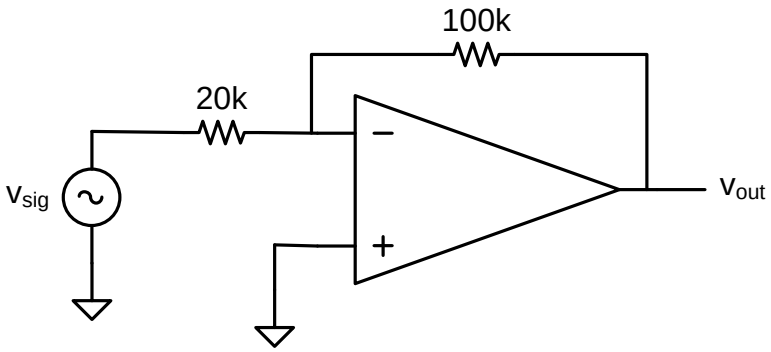
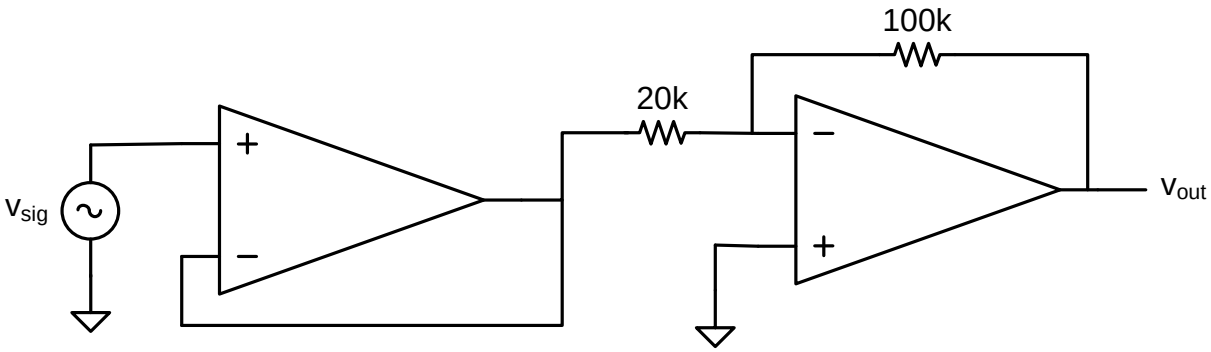
TCES 312 Analog Electronics
Lab 5 Op amp inverting amplifier and push-pull output driver
March 10, 2014

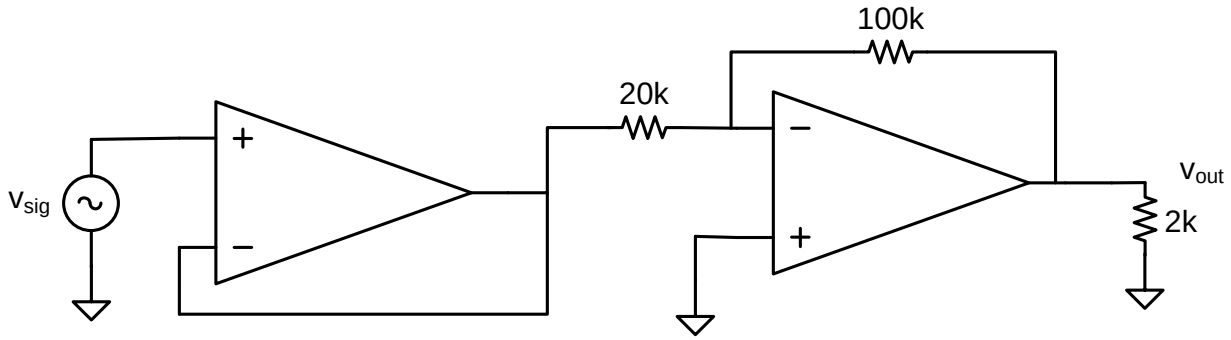
a) Build the inverting amplifier from the CMOS quad op amp IC, NJU7024. Set up ± 5 V supplies with ground. Use a 200 mV p-p AC input at 50-100 Hz. Confirm the gain. Now add a 10-20 kΩ signal resistor and again measure the gain. Determine the input resistance.



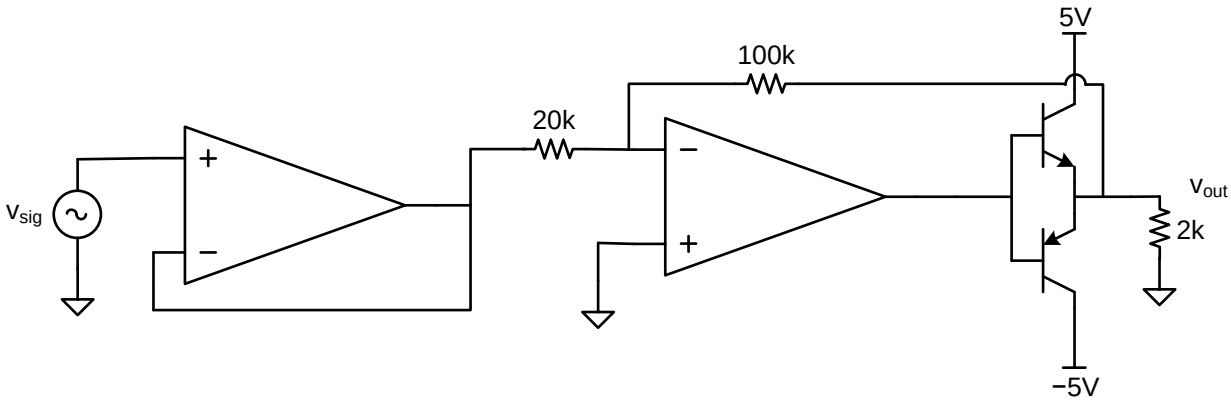
b) Add a follower to the input and measure the input resistance, if you can.



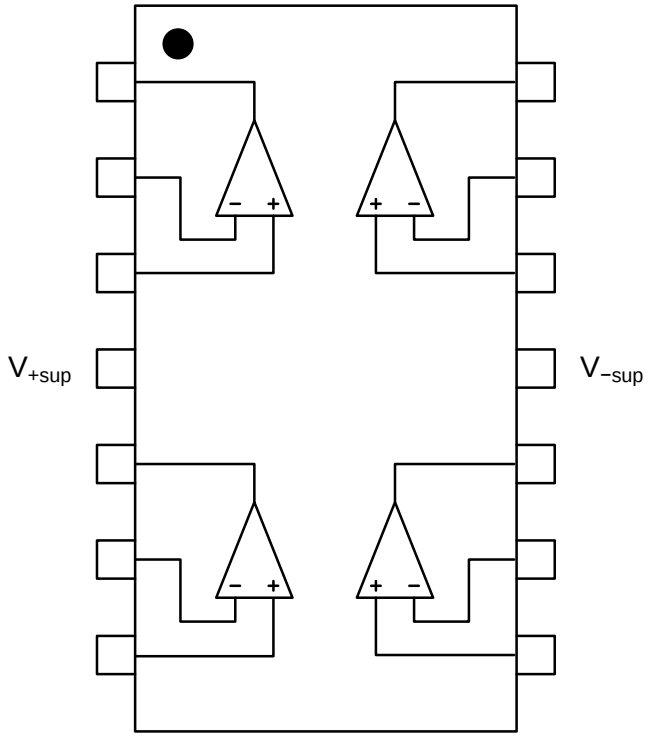
c) Add a 2 kΩ load and look at the output for a 200 mV p-p input. If not, increase the input amplitude slightly. About what maximum current is the op amp able to deliver?



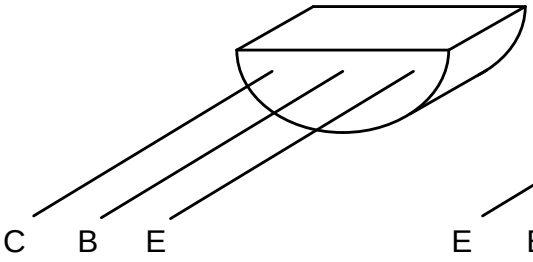
d) Finally add a push-pull output stage from a 2N2222 npn and a 2N4403 pnp transistor. Note the feedback network is now relocated so that it is still connected to the output of the amplifier, now at the push-pull output. Add the 2 kΩ load. Is there any distortion? Replace with a 100 Ω load? Is there any distortion? How much current is the output stage able to deliver to the 100 Ω load?



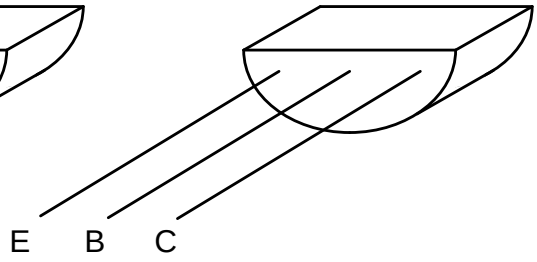
NJU7024



2N2222



2N4403



TCES 312 Lab 5
3/11/14
Lab partners_____

a) measured gain

evidence gain is negative

signal resistor added

gain with signal resistor

input resistance

b) signal resistor added

gain with signal resistor

input resistance

c) sketch of output with 2 kΩ load

maximum current to 2 kΩ load

d) sketch of output with 2 kΩ load

sketch of output with 100 Ω load