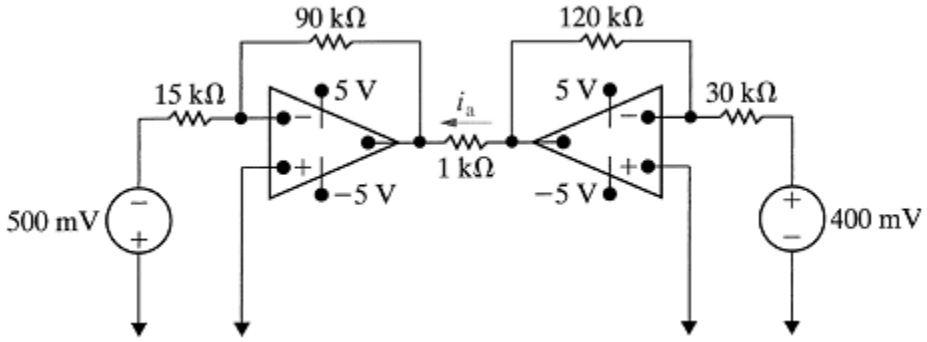
Homework Set #22
DUE Monday, May 8, 2017

1. The op-amps in the following circuit are ideal.



Let v_{o1} = output voltage of the amplifier on the left. Let v_{o2} = output voltage of the amplifier on the right. Then

a) Find i_a.

b) Find the value of the right source voltage for which $i_a = 0$.

2. The op amp in the noninverting amplifier circuit of Fig. P5.43 has an input resistance of 440 kΩ, an output resistance of 5 kΩ, and an open-loop gain of 100,000. Assume that the op amp is operating in its linear region.

a) Calculate the voltage gain (v_o/v_g).

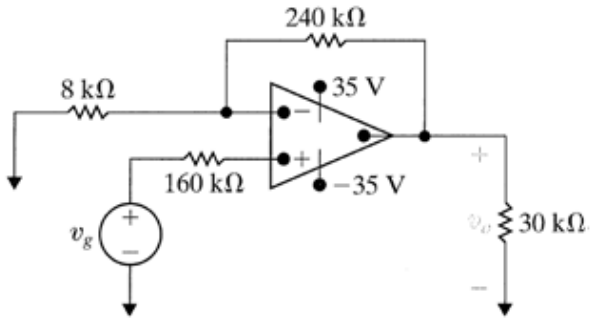
b) Find the inverting and noninverting input voltages v_n and v_p (in millivolts) if $v_g = 1$ V.

c) Calculate the difference ($v_p - v_n$) in microvolts when $v_g = 1$ V.

d) Find the current drain in picoamperes on the signal source v_g when $v_g = 1$ V.

e) Repeat (a)–(d) assuming an ideal op amp.

Figure P5.43



3. Problem 5.39 in Nilsson. (v_{o1} is slightly under 16 V)