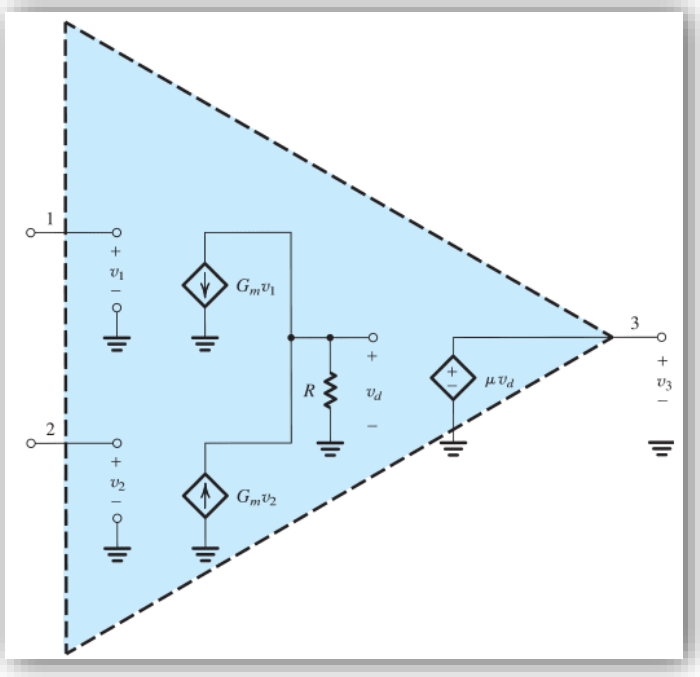
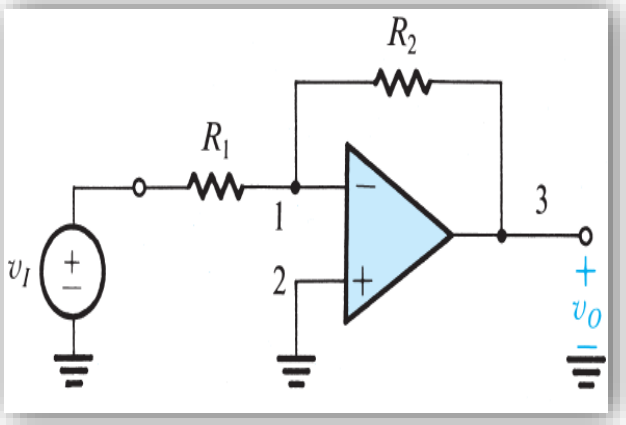
Electronic and Digital Circuits (ELC 225a)

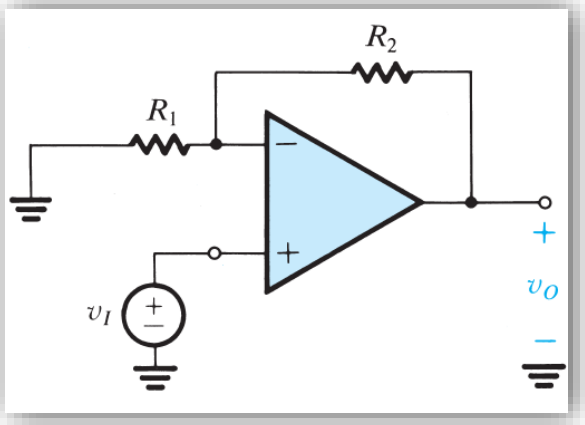
Operational Amplifier

1- For the Op-Amp shown in figure, express the output v_3 as a function of v_1 and v_2. For G_m = 10 mA/V, R = 10 kΩ, and μ = 100, find the value of the open-loop gain A



2- Find the closed-loop gain, G, for both the inverting and non-inverting Op-Amp configurations, assuming that the opem-loop gain, A, is finite.

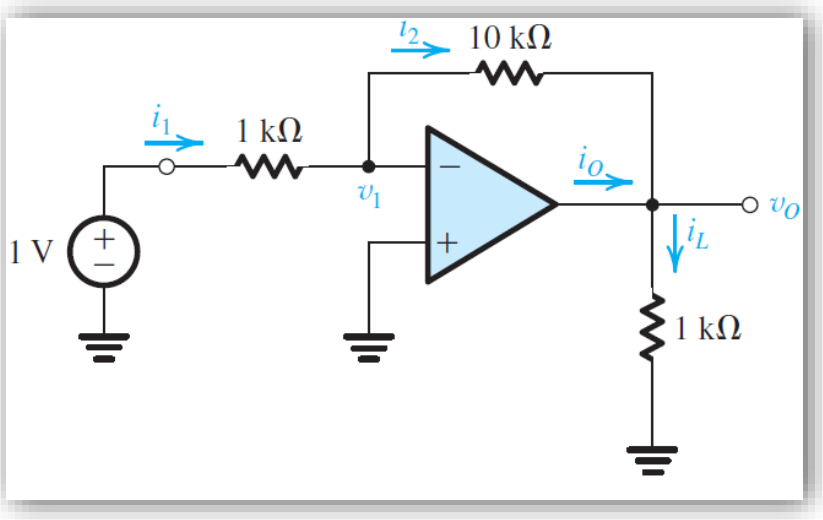


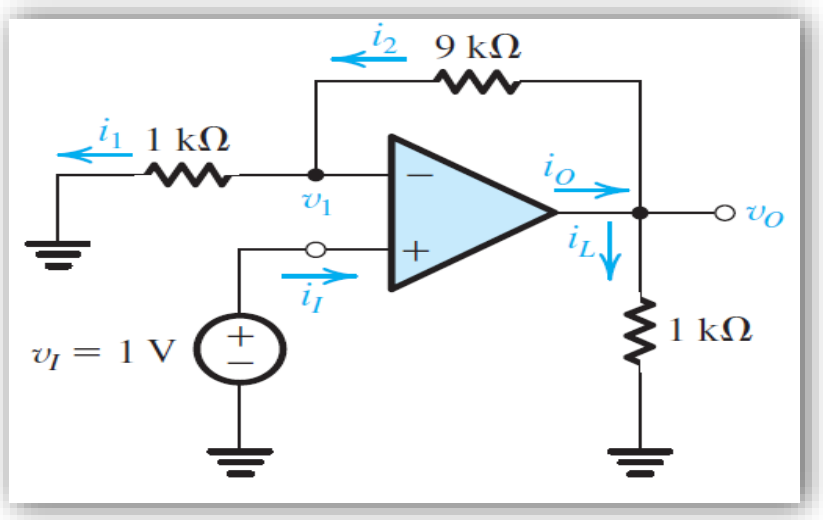


Electronic and Digital Circuits (ELC 225a)

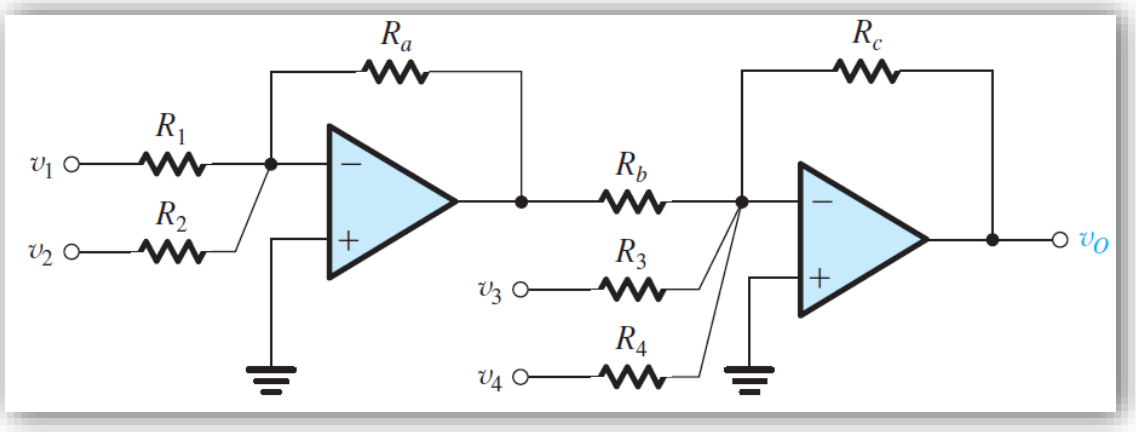
Operational Amplifier

3- For each of the following circuits:
Determine all the indicated branch currents and node voltages.
Find the voltage gain, v_o/v_i, the current gain, i_L/i_1, and the power gain, P_o/P_i





4- Find the relation between the output voltage and the input voltages. Assume ideal Op-Amp.



5- Find the relation between the output voltage and the input voltages. Assume ideal Op-Amps.