

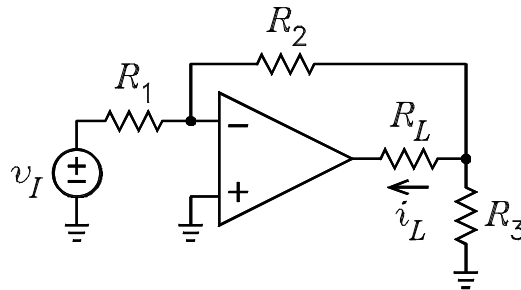
**EE4086 Quiz 2**  
February 27, 1998

Professor Leach

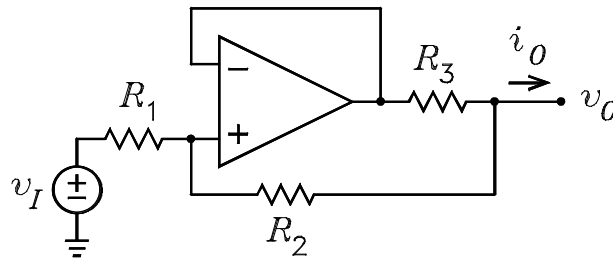
Name \_\_\_\_\_

**Instructions.** Print your name in the space above and on all quiz work sheets. Place a box around all answers. Write the word “over” if you continue your work on another page. Assume that all op-amps are ideal unless it is given otherwise.

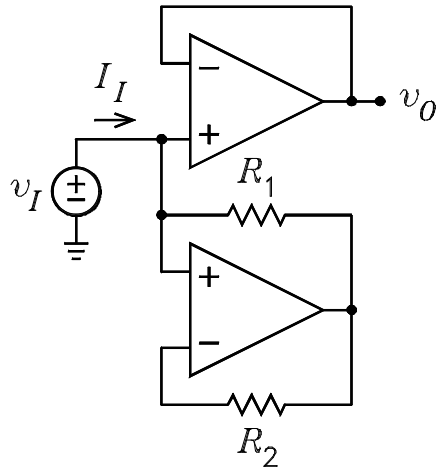
1. Solve for the load current  $i_L$  for the circuit given and show that it is independent of  $R_L$ .



2. Solve for the Thevenin equivalent circuit seen looking into the  $v_O$  node of the circuit in the figure.



3. The op-amps in the circuit given are identical. They can be considered to be ideal in all respects except that each one has an input bias current  $I_{IB}$  flowing into each op-amp input lead. Solve for the relation between  $R_1$  and  $R_2$  which makes the dc input current  $I_I = 0$ .



4. Solve for the relations between  $v_O$  and  $v_I$  in the circuit given for  $v_I > 0$  and for  $v_I < 0$ . Hint, redraw the circuit for each case and assume that the diodes are ideal. Use the relations that you obtain to sketch  $v_O$  versus  $v_I$ .

