

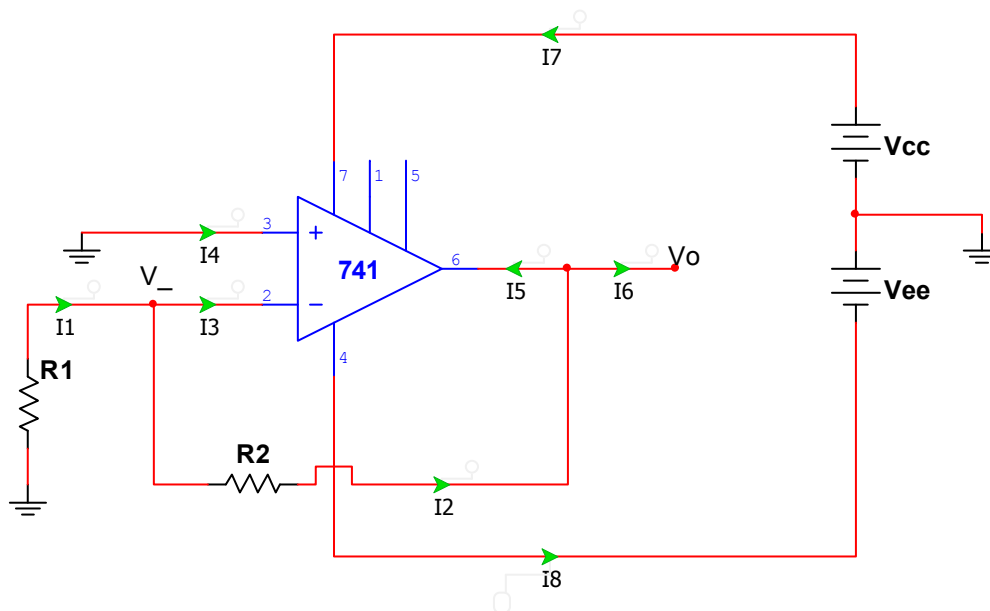
**FLORIDA INTERNATIONAL UNIVERSITY**  
**COLLEGE OF ENGINEERING AND COMPUTING**  
**DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING**

*EEL 3110L-CIRCUITS LAB*

**FOURTH ACTIVITY: Op-Amps I**

Please do the computer simulations before or after the lab  
(it's recommended that you do them before).

1- Set up the following circuits with all Op-Amps properly biased.



$$(V_{cc} = V_{ee}) \geq 10.4 \text{ volts}$$

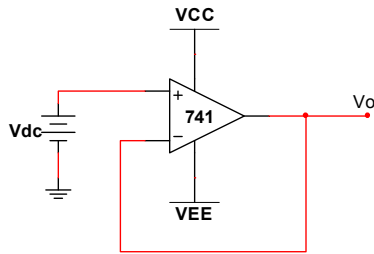
$$R_2 \geq 2R_1$$

Measure and tabulate  $I_1, I_2, I_3, I_4, I_5, I_6, I_7, I_8, V_{cc}, V_{ee}$  and  $V_o$

Briefly explain and comment your results

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2- Set up the following circuits with the Op-Amp properly biased (Not shown).



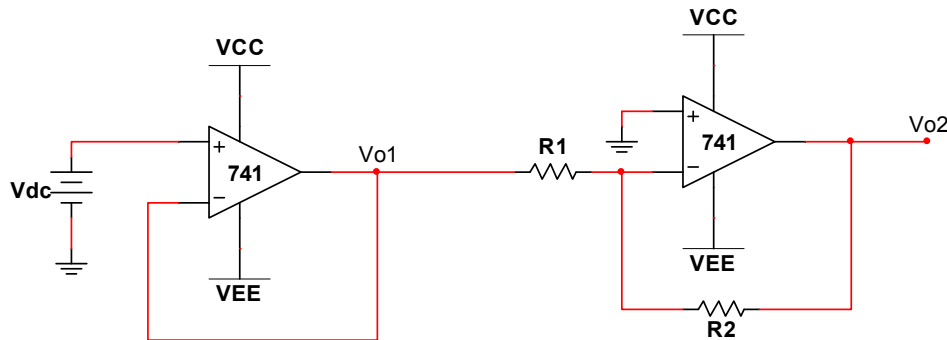
$V_{dc} \geq 5$  volt

Measure  $V_o$

Briefly explain and comment your results

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3- Set up the following circuit.



\*\*\*note:  $V_{cc}$  and  $V_{ee}$  are not shown in the drawing. Use the same value of  $V_{cc}$  and  $V_{ee}$  as before.

$V_{dc} \geq 5$  V

Measure and Tabulate  $V_{dc}$ ,  $V_{o1}$  and  $V_{o2}$  for the given conditions.

Take note of the gain:  $(A_v = \frac{v_{o2}}{V_{dc}})$  for each conditions

$$R1 = R2$$

$$R1 > R2$$

$$R1 < R2$$

Briefly explain and comment your results.

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Write a brief summary of today activities. Remember to keep your records and own comments in your lab notebook.