

# ECE 207L - OP AMP CIRCUITS - LAB 8

## NEGATIVE GAIN OP AMP CIRCUITS

FALL 2003

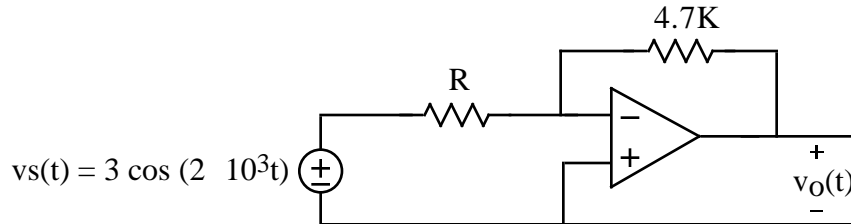
A.P. FELZER

### OBJECTIVE

The objective of this lab is to investigate some basic operation of negative gain op amp circuits.

### LAB

1. Given the following negative gain op amp circuit



PARTNER 1:  $R_1 = 2K$       PARTNER 2:  $R_2 = 3.3K$

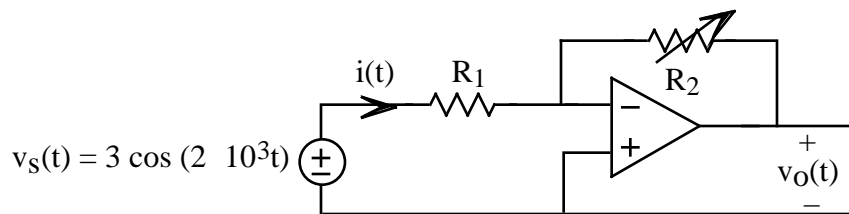
- a. First redraw the circuit diagram with op amp pin numbers
- b. Then measure your resistor values. Compare with nominal values
- c. Measure  $v_O(t)$
- d. Make use of the result

$$G = \frac{V_o}{V_s} = -\frac{R_2}{R_1}$$

to calculate  $v_O(t)$

- e. Compare your calculated and measured values for  $v_O(t)$

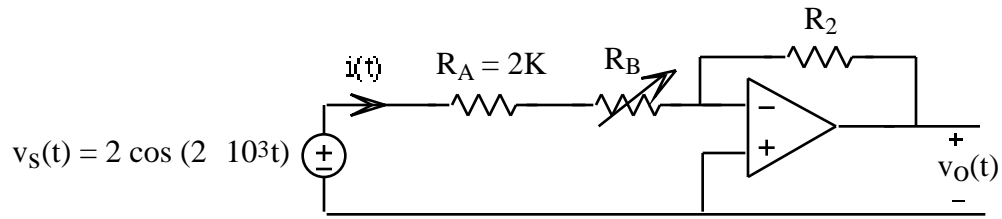
2. Given the following negative gain op amp circuit



PARTNER 1:  $R_1 = 4.7K$       PARTNER 2:  $R_1 = 5.7K$

- a. First redraw the circuit diagram with op amp pin numbers
- b. Then measure the value of your resistor  $R_1$ . Compare with its nominal value
- c. Observe and describe what happens to  $v_O(t)$  as  $R_2$  increases from 0 to 10K. Illustrate with graphs.
- d. Observe and describe what happens to  $i(t)$  as  $R_2$  increases from 0 to 10K. Illustrate with graphs

3. Given the following negative gain op amp circuit



PARTNER 1:  $R_2 = 4.7K$     PARTNER 2:  $R_2 = 10K$

- First redraw the circuit diagram - write in the op amp pin numbers
- Then measure the values of your resistors  $R_A$  and  $R_2$ . Compare with nominal values
- Observe and describe what happens to  $v_o(t)$  as  $R_1 = 2K + R_B$  increases. Illustrate with graphs.
- Observe and describe what happens to  $i(t)$  as  $R_1 = 2K + R_B$  increases. Illustrate with graphs