

# EE4086 Quiz 1

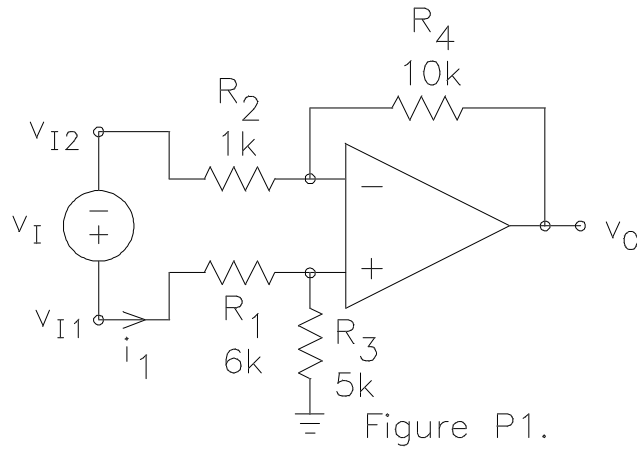
JANUARY 27, 1997

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.

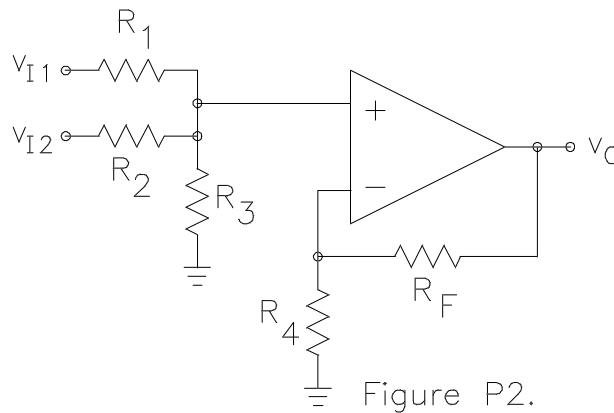
1. For the circuit of Figure P1, solve for  $v_O$ ,  $i_1$ ,  $v_{I1}$ , and  $v_{I2}$  as functions of  $v_I$ .



2. The circuit of Figure P2 is to be designed for an output voltage given by

$$v_O = 3v_{I1} + 5v_{I2}$$

The op-amp is to have a non-inverting voltage gain of 20. If  $R_3 = R_F = 10 \text{ k}\Omega$ , specify  $R_1$ ,  $R_2$ , and  $R_4$ .



3. For the circuit of Figure P3, solve for  $v_A$ ,  $v_B$ , and  $v_O$ .

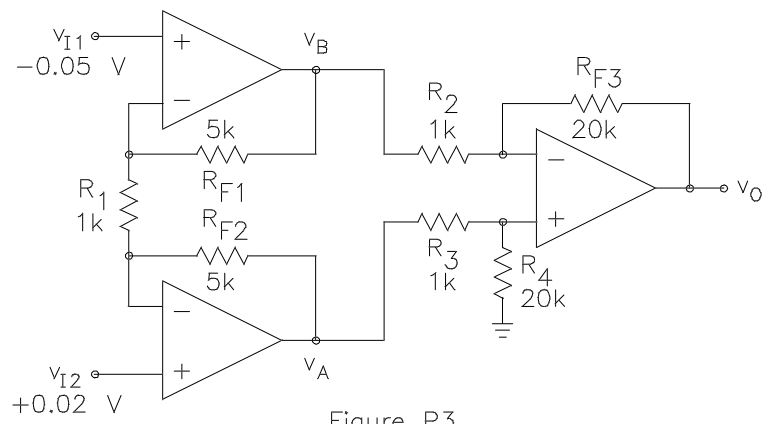


Figure P3.

4. For the circuit of Figure P4, solve for  $v_O/v_I$  and  $r_{IN}$ .

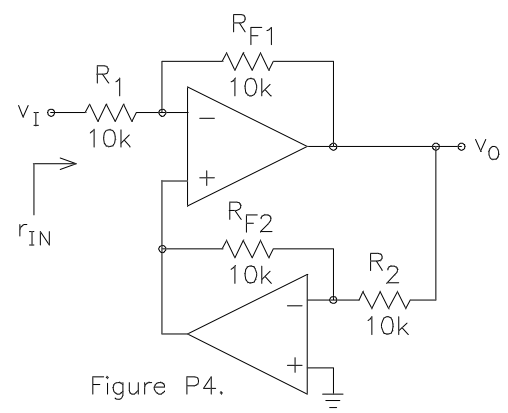


Figure P4.