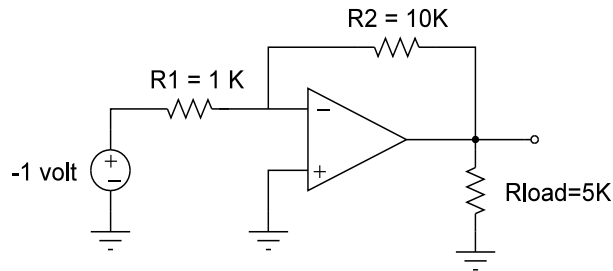


ENGR-356
HW#3

- 0) Read pages 73-87 in the textbook.
- 1) For the circuit below, assume an ideal opamp. Find the currents through all branches and the voltages at all nodes. Find the power dissipated in each resistor. How much power is delivered by the -1 volt input? How much current is flowing through the output of the opamp? What is the gain of this circuit?



- 2) a) Design an inverting amplifier with a closed-loop gain of -200V/V and an input resistance of $1\text{ K}\Omega$ (start your design assuming the opamp is ideal).
- b) If the op amp is not ideal but has an open-loop gain of 5000 V/V , what do you expect the closed-loop gain of your circuit to be (assuming the resistors have precise values)?
- c) Give the value of a resistor you can place in parallel (shunt) with the input resistor to restore the closed-loop gain to its nominal value. Use the closest standard 1% resistor value (see Appendix J).
- d) As an alternative design, give the closest standard resistor value that may be connected in series with R2 to restore the closed-loop gain to its ideal value.