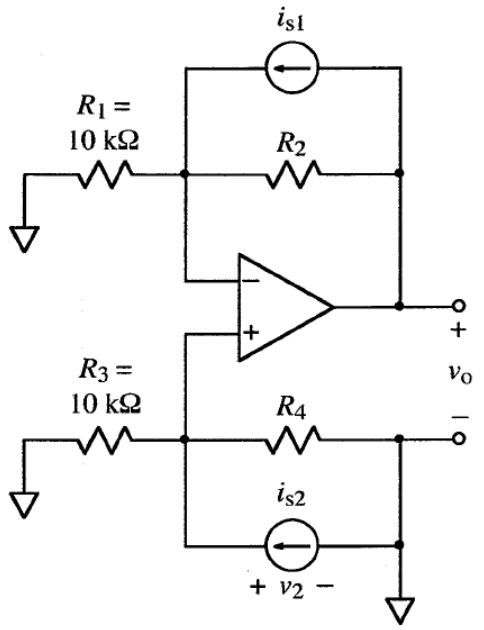
1.



The above circuit operates in linear mode. Derive a symbolic expression for v_o. The expression must contain not more than the parameters i_{s1}, i_{s2}, R_1, R_2, R_3, and R_4.

2.

If $i_{s1} = 10$ μA and $i_{s2} = 0$ μA, find the value of $R_2 = R_4$ that will yield an output voltage of $v_o = 1$ V.

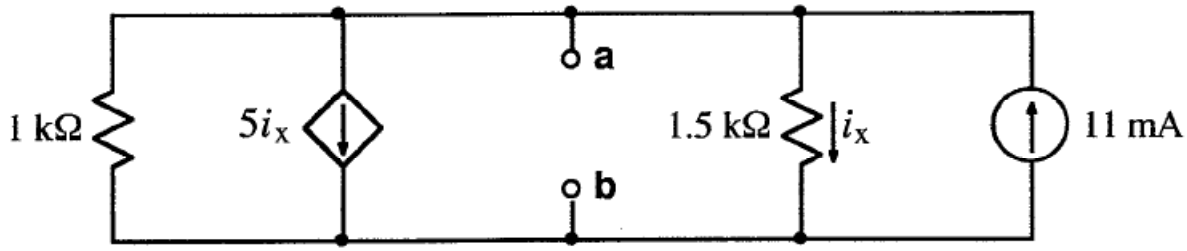
3.

Write a formula for the circuit's input resistance, R_{in}, as seen by source i_{s2}. In other words, write a formula for voltage, v_2, across i_{s2} divided by i_{s2}:

$$R_{in} \equiv \frac{v_2}{i_{s2}}$$

Write R_{in} in terms of not more (and possibly less) than R_1, R_2, R_3, and R_4.

4.



Find the Thevenin equivalent of the above circuit relative to terminals **a** and **b**.

5. a)

If we attach R_L to terminals **a** and **b**, find the value of R_L that will absorb maximum power.

b)

Calculate the value of that maximum power absorbed by R_L.