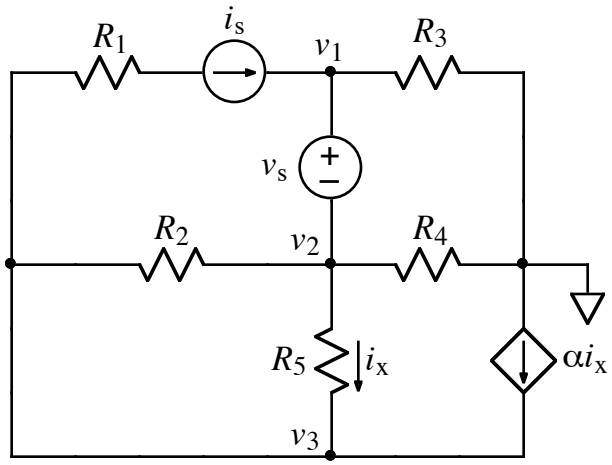
# HOMEWORK #8



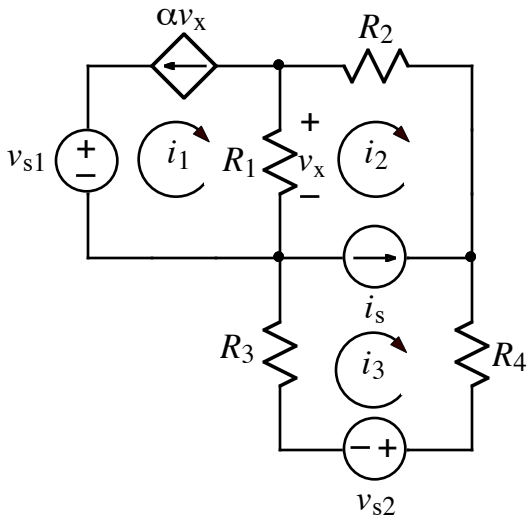
1.




For the circuit shown, write three independent equations for the node-voltages, $v_1$, $v_2$, and $v_3$. The quantity $i_x$ must not appear in the equations.

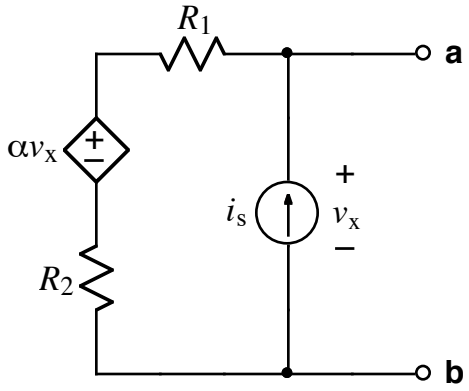
2. Make at least one consistency check (other than a units check) on your expression for problem 1. In other words, choose component values that make the values of $v_1$, $v_2$, and $v_3$ obvious, and verify that your answer to problem 1 gives these values. Specify your consistency check by listing a numerical value for every source and resistor.

3.



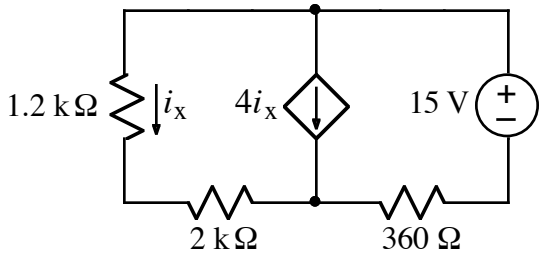

For the circuit shown, write three independent equations for the three mesh currents, $i_1$, $i_2$, and $i_3$. The quantity $v_x$ must not appear in the equations.

4.




Find the Thevenin equivalent circuit at terminals a-b. $v_x$ must not appear in your solution. **Hint:** use the node-voltage method.

5.




Calculate the power dissipated by the dependent current source, (labeled $4i_x$).