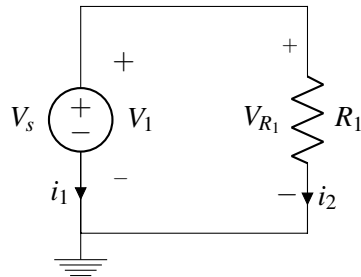EECS 16A   Designing Information Devices and Systems I
Spring 2020
Discussion 7A

1. Passive Sign Convention and Power

(a) Suppose we have the following circuit and label the currents as shown below. Calculate the power dissipated or supplied by every element in the circuit. Let $V_s = 5\,\text{V}$ and let $R_1 = 5\,\Omega$.
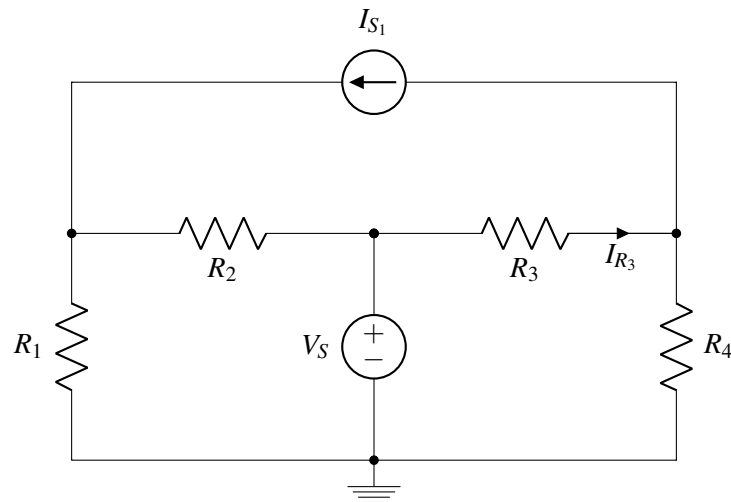

(b) Suppose we change the label of the currents in the circuit to be as shown below. Calculate the power dissipated or supplied by every element in the circuit. Let $V_s = 5\,\text{V}$ and let $R_1 = 5\,\Omega$.
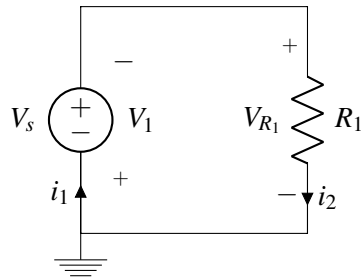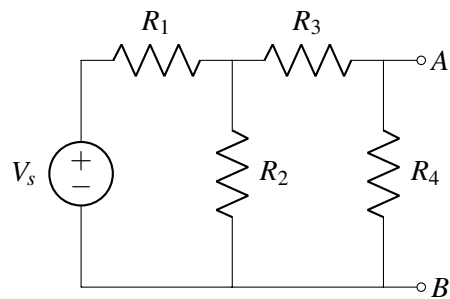

2. Circuit Analysis

(a) Use nodal analysis to solve for all node voltages.

(b) Find current I_{R_3} flowing through resistor R_3.

3. KVL and KCL

For the circuit shown below, $V_s = 5\,\text{V}$, $R_1 = R_2 = 4\,\text{k}\Omega$, and $R_3 = R_4 = 2\,\text{k}\Omega$.

(a) For the circuit above, write KVL equations for each loop and KCL equations for each node.

(b) Solve for the voltage between A and B using resistor combination rules and divider rules.