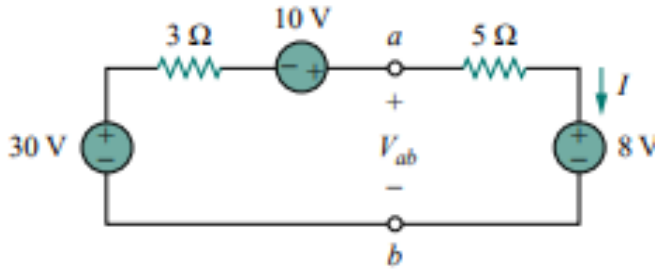
CSE 250

Summer 2023

Assignment 1

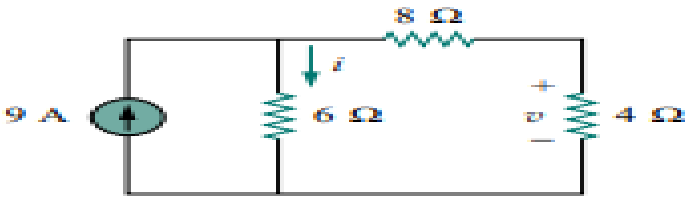
1. KVL refers to the conservation of electrical energy in a single loop. We apply KVL to a loop.

Apply KVL in the following single loop circuit to find out loop I current and hence, find out the voltage difference V_{ab} and the power absorbed or delivered by each voltage source.



2. KCL refers to the conservation of electrical charge at a single node. We apply KCL to a node.

Apply KCL at a suitable node to find out current i and find the voltage v. How much power does 8Ω resistor absorb in the following circuit?

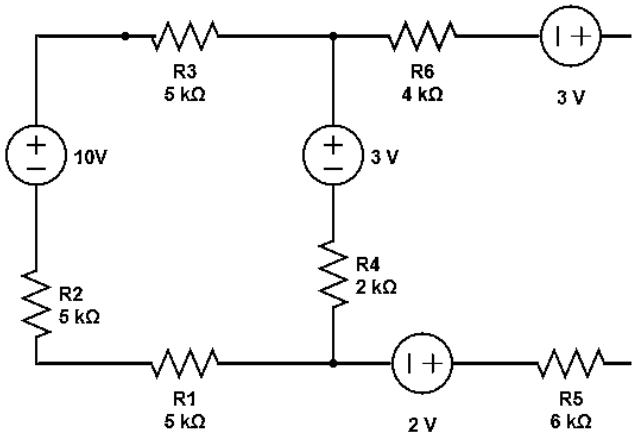


3. The following circuit comprises of a closed loop and an open loop with open ends at the right.

Find the current flow in both loops.

Find out voltage difference at the open end of the open loop.

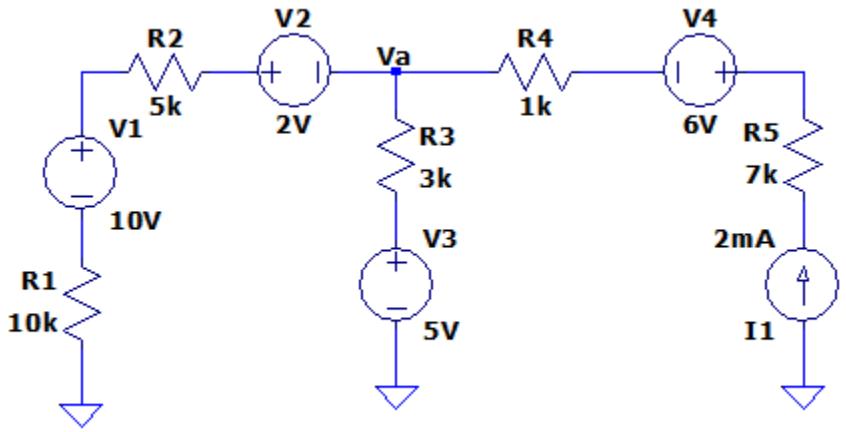
Find the power P_{3V} and P_{10V} mentioning whether the power is absorbed or delivered.



4. The following circuit has three branches grounded at one their terminal.

Apply KCL to find V_a.

Find the power of the voltage sources V_4, V_3 and resitace R_1



5. Apply KCL at a suitable node in the following circuit.

Find the nodal voltage of the node you considered.

Find out v_1 and v_2