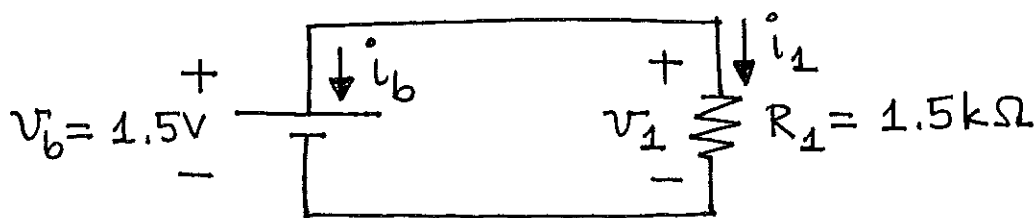


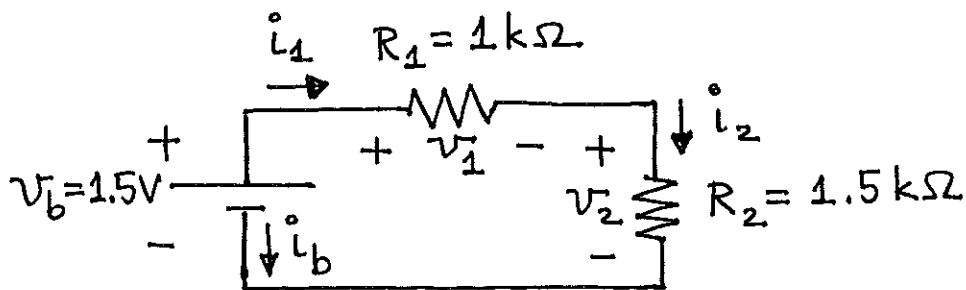
HOMWORK #1

(1) For the circuit shown, find the values of all voltages, currents and powers indicated. Provide appropriate unit for each answer. Box each answer. Provide appropriate sign for each power value (based on passive convention).



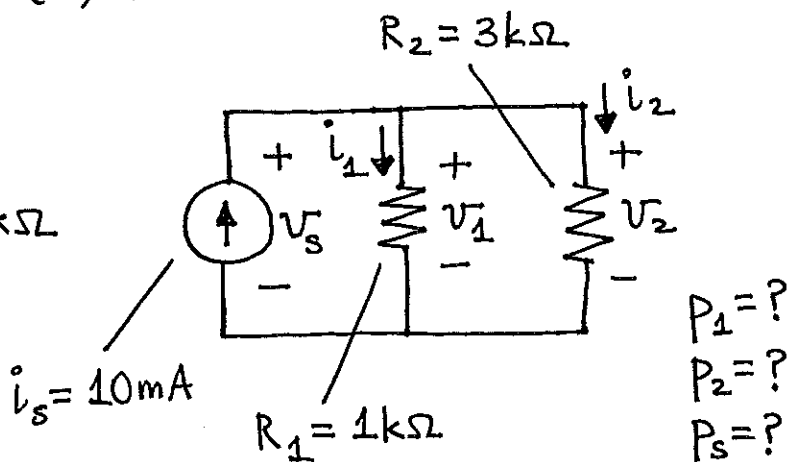
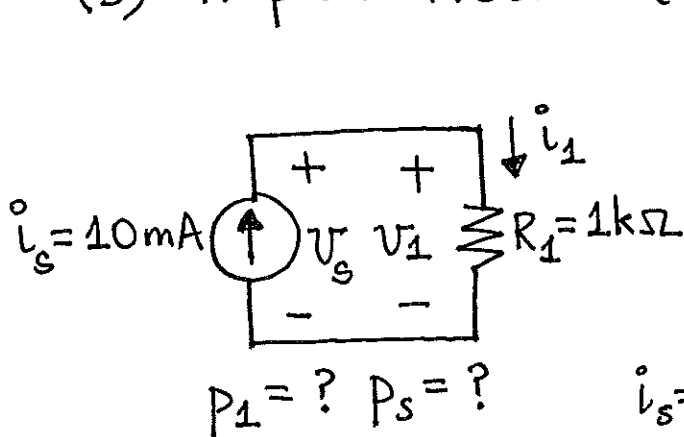
$P_1 = ? \quad P_b = ?$

(2) Repeat Problem (1) for the circuit shown below.

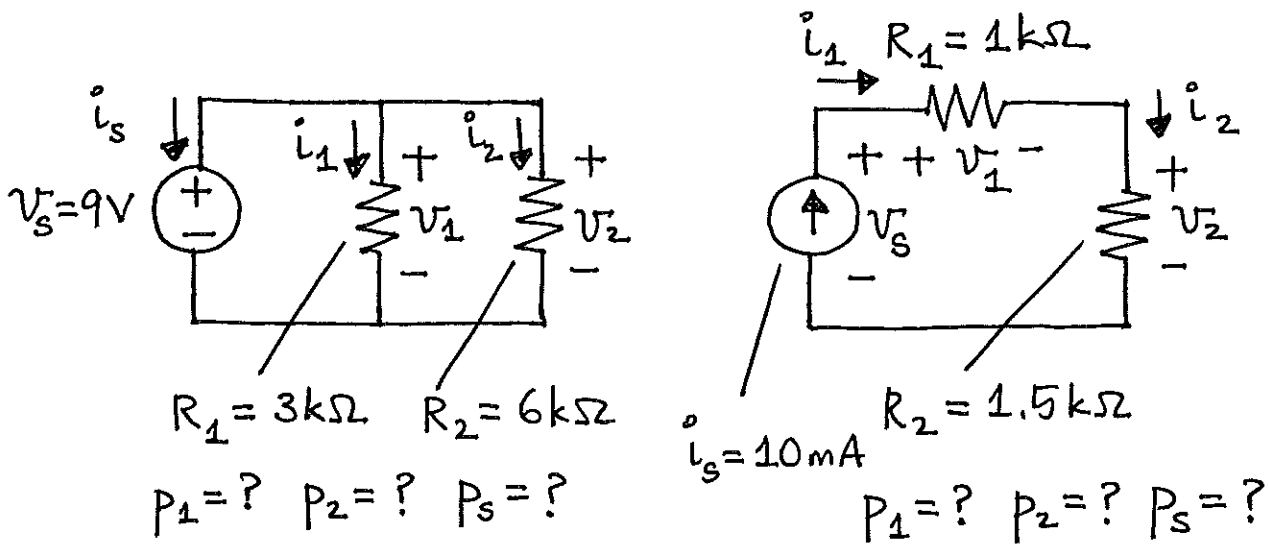


$P_1 = ? \quad P_2 = ? \quad P_b = ?$

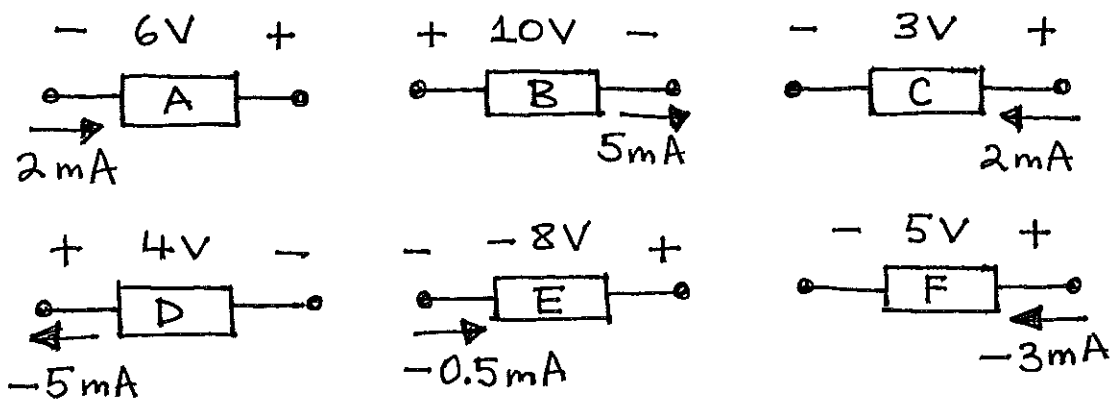
(3) Repeat Problem (1) for each circuit shown below.



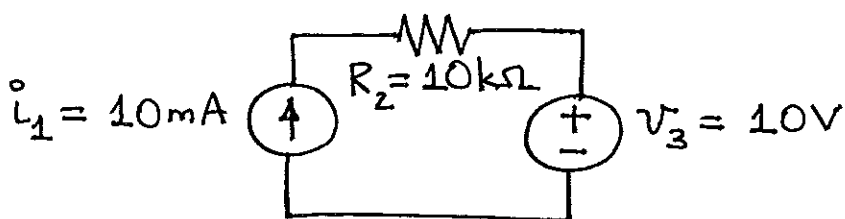
(4) Repeat Problem (1) for the two circuits shown below.



(5) Assume each element shown to be a part of a closed circuit. Find the power of each and indicate its sign based on passive convention. Box each answer and don't forget to provide units.

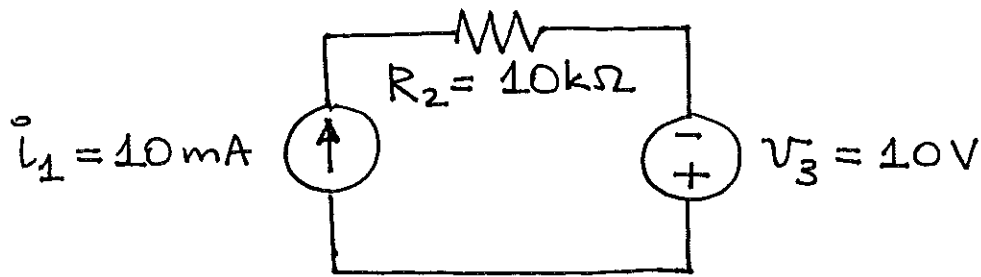


(6) For the circuit shown, find the voltage, current and power of each element. Indicate your voltage polarities and current directions in the circuit.

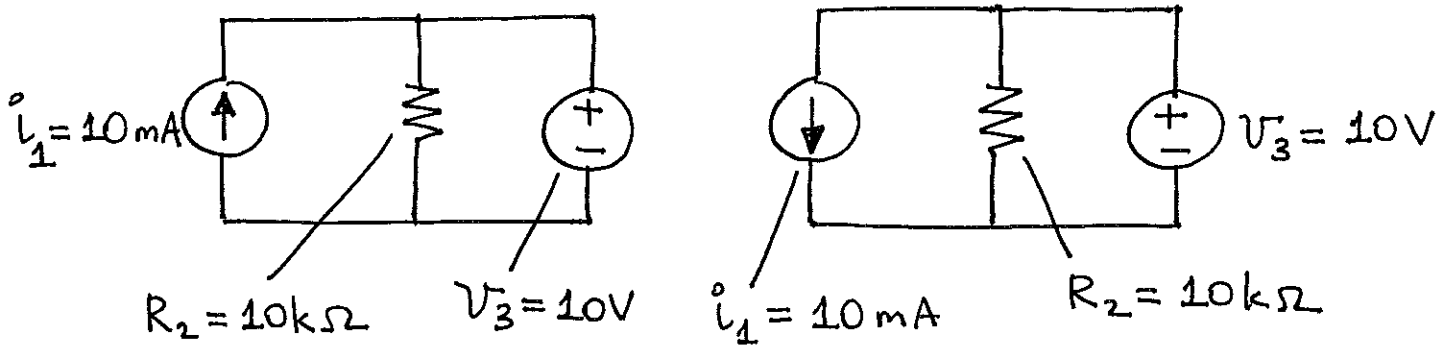


Provide power values based on passive convention.

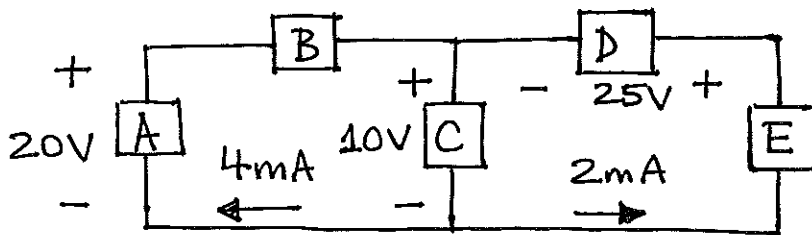
(7) Repeat Problem (6) for the circuit shown below.



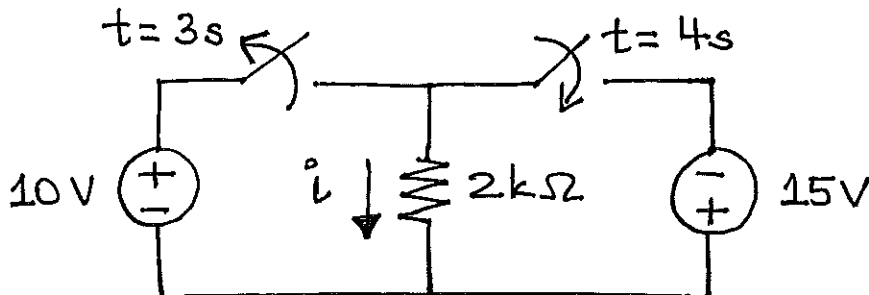
(8) Repeat Problem (6) for the circuits shown below.



(9) For the circuit shown below, find the power of each element based on passive convention and check the conservation of energy principle.



(10) For the switching circuit shown, find the value of the current i at $t = 2s$ and $t = 5s$.

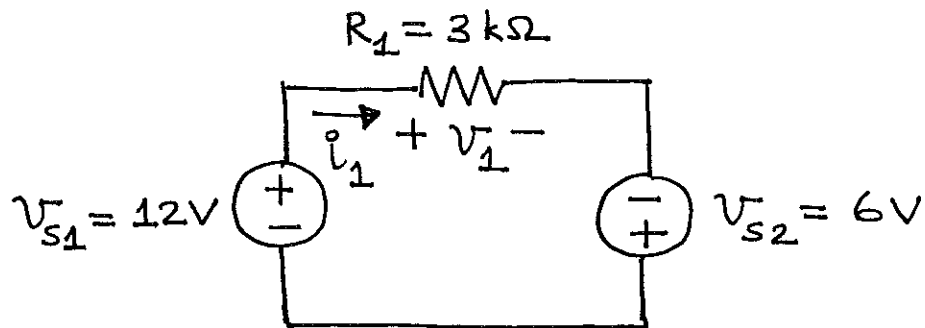


(11) For the circuit shown:

(a) Find the voltage v_1 , current i_1 and power p_1 .

(b) Reverse the polarity of the 6V voltage source and repeat Part (a).

(c) Verify conservation of energy principle for both parts.



(12) For the circuit shown:

(a) Find the voltage v_1 , current i_1 and power p_1 .

(b) Reverse the direction of the 30mA current source and repeat Part (a).

(c) Verify conservation of energy principle for both parts.

