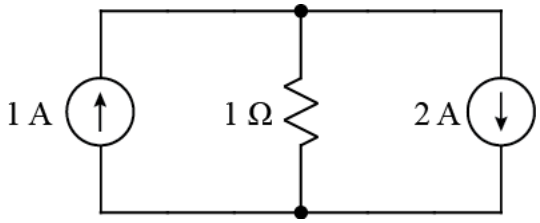
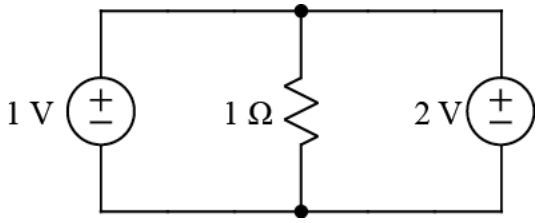
Homework 2

1. Determine whether each of the following circuits is valid or invalid.

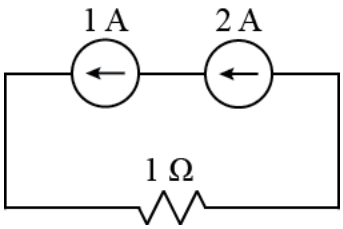
a)



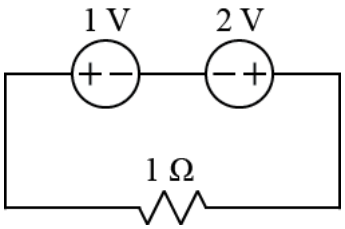
b)



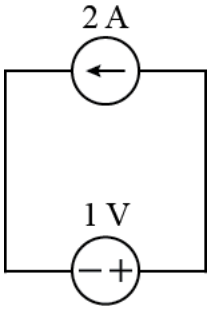
c)



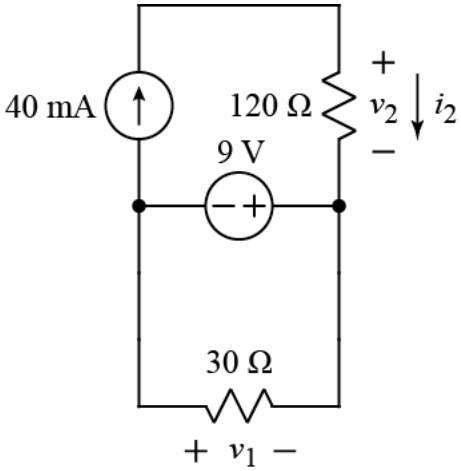
d)



e)

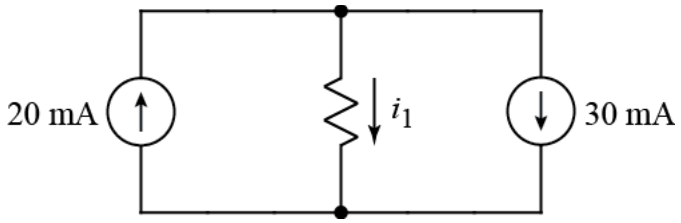


2.



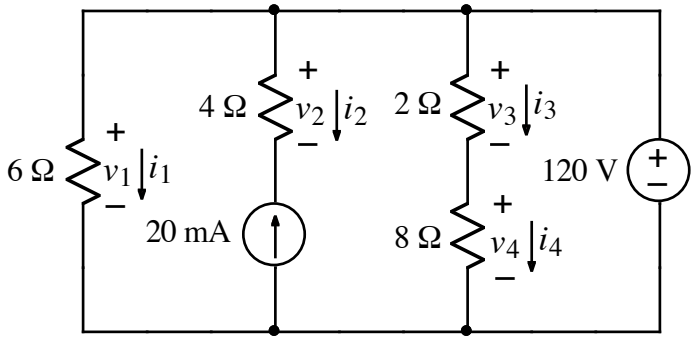
Use Kirchhoff's laws to find v_1 and i_2.

3.



Use Kirchhoff's laws to find the value of i_1.

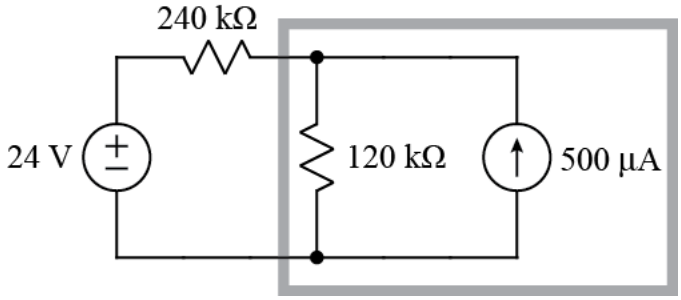
4.



a) For the circuit shown above, use Kirchhoff's laws to write equations relating voltages and currents.

b) Find the value of v_1 and i_2.

5.



Find the total power dissipated by the components inside the box.

ANS: 1.a) val b) inv c) inv d) val e) val

2. $v_1 = -9$V, $i_2 = 40$ mA

3. –10 mA

4. $v_1 = 120$V, $i_2 = -20$ mA

5. –4.8 mW