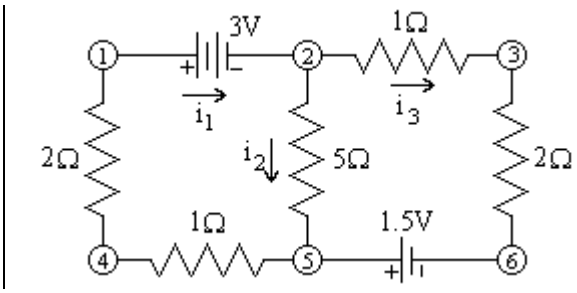
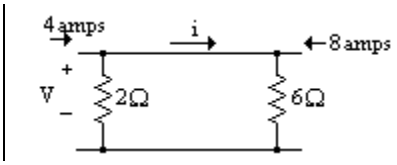
EE 210 **Name_____**
Hour Exam 1 **September 7, 2017**

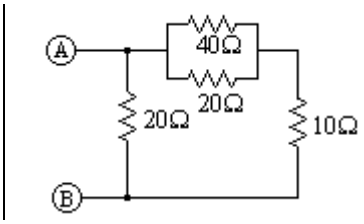
1. For the circuit below write the equation for the loop around nodes 1, 2, 3, 6, 5, 4 in terms of i_1, i_2, i_3, the battery voltages, and the resistor values.



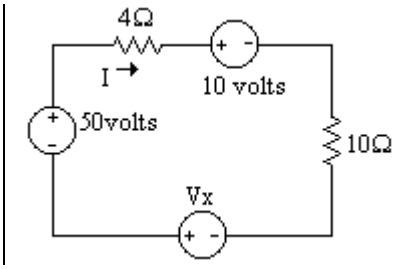
2. In the circuit below find the values of V and i. Show all work.



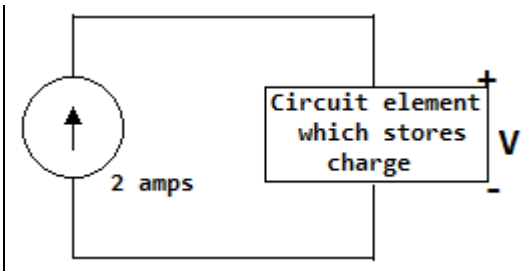
3. For the circuit below find the equivalent resistance at terminals A-B. Show all work.



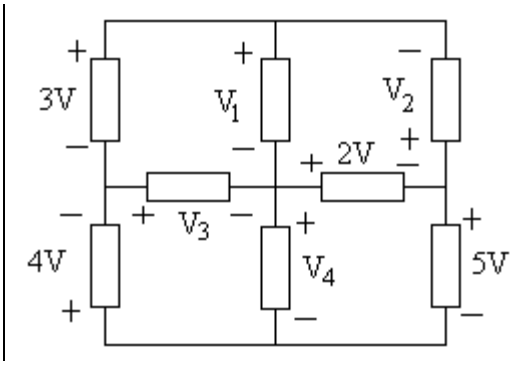
4. For the circuit shown the value of *I* is known to be 0.40 amps. Find the value of Vx. Show all work.



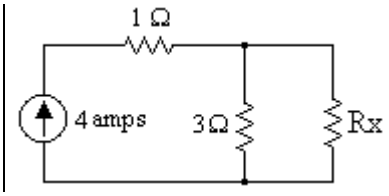
5. Suppose that I have a circuit element which is capable of storing charge. The voltage across the element is proportional to the stored charge. If the proportionality constant is C we can write q = CV where q is the stored charge and V is the voltage across the element. If the circuit element is connected to a constant current source as shown below write the equation for the voltage.



6. Each block in the circuit diagram below represents a circuit element. Find the values of V_1, V_2, V_3, and V_4. Show all work.

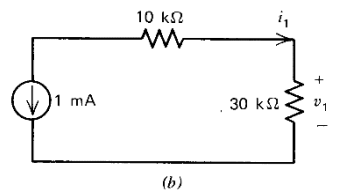


7. In the circuit below find the value of R_x such that the power dissipated by R_x is 12 watts.



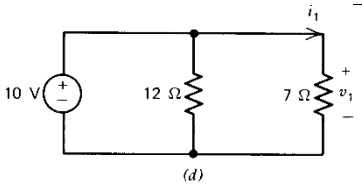
8. Find v_1 and i_1 for each of the following:

(a) v_1 = _____ i_1 = _____



(b)

(b) v_1 = _____ i_1 = _____



(d)