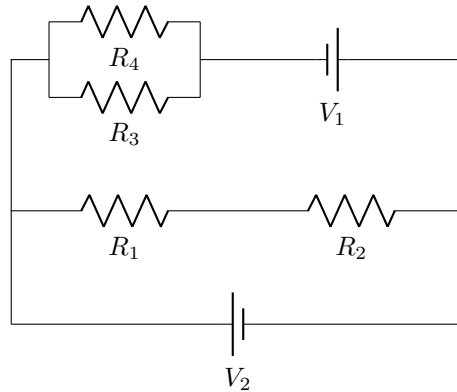


Chapter 26 - Direct-Current Circuits

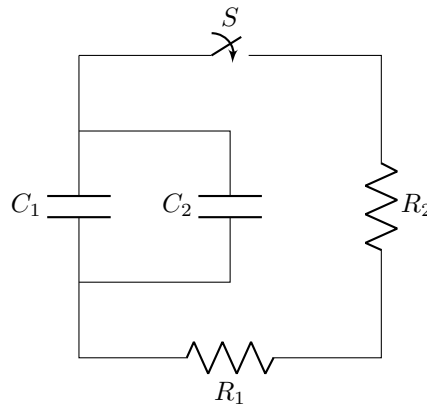
Physics 207

1. In the circuit below, assume that all the R 's and V 's are known. Find the current through each resistor.

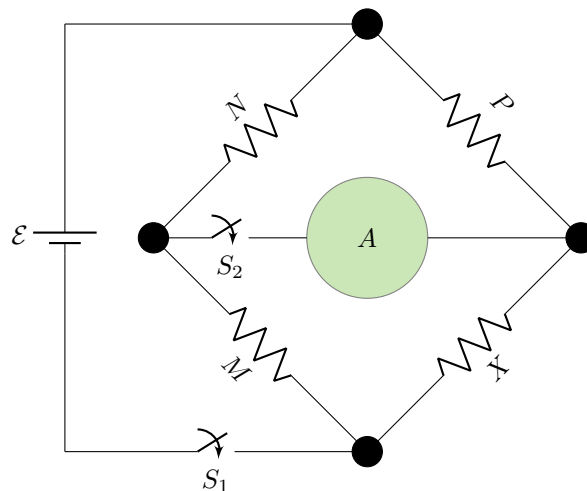


2. In the circuit shown, both capacitors are initially charged to V_0 .

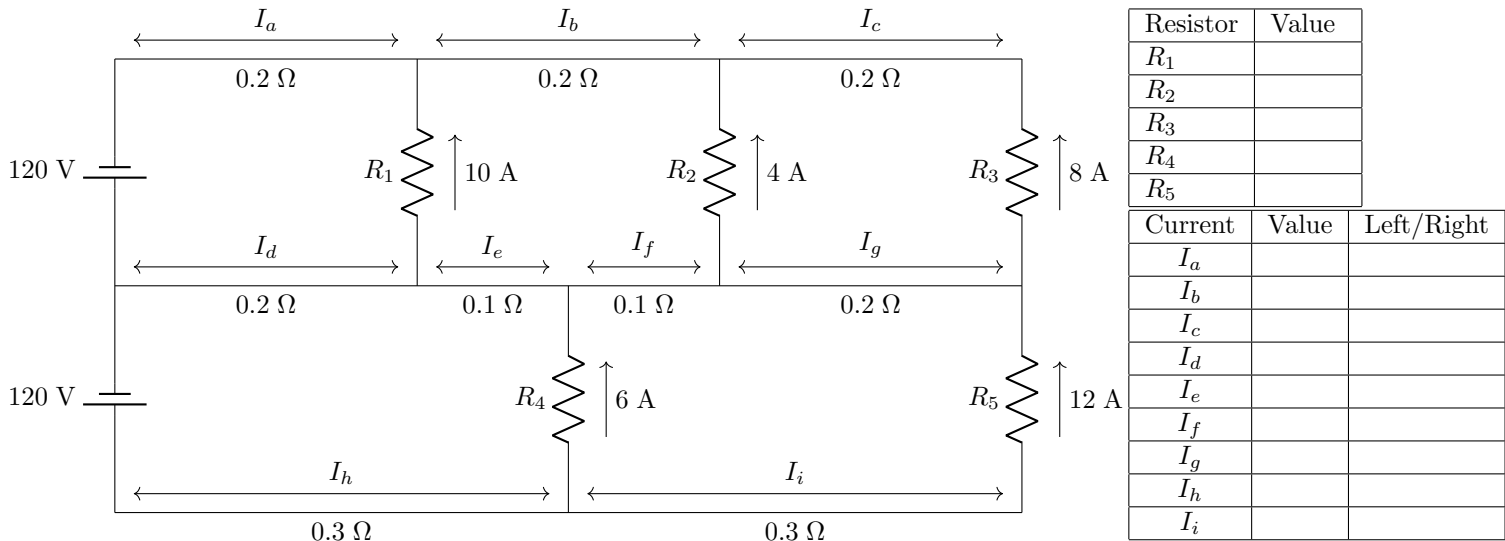
- How long after closing the switch S will the potential across each capacitor be reduced to $\frac{1}{3}V_0$?
- What will be the current at that time?



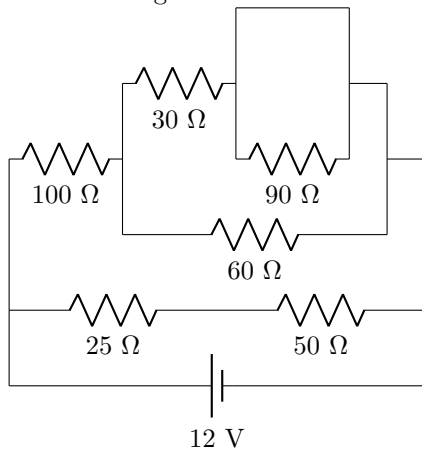
3. The circuit shown below, called a Wheatstone bridge which is used to determine an unknown resistor X . To do this, they set the resistors M , N and P to be certain resistances so that the current through the ammeter A is zero when both switches are closed. Assuming this is the case, what is X in terms of M , N and P ?



4. In the following circuit identify the magnitudes of the 9 currents and the directions (left or right) of the current. Be sure to explicitly state whether the current is moving left or right. Also identify the 5 resistances. As a special note, the wires in this example are NOT ideal and contain small amounts of resistance as indicated, which implies you should treat them like resistors.



5. Find the current through each of the resistors in this circuit and the current through the battery.



Resistor	Current (mA)
25 Ω	
50 Ω	
100 Ω	
60 Ω	
30 Ω	
90 Ω	
Battery	

6a) How many independent currents are there in this circuit?

6b) Write out the system of equations you would need to solve for the current through each resistor. Make sure to draw and label your predicted current directions. DO NOT SOLVE for the currents.

