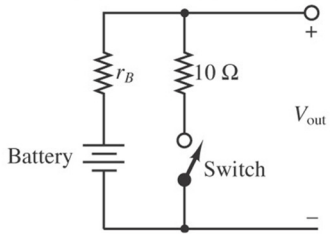
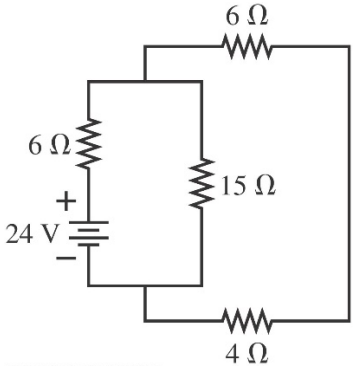
Problem 1
Ch. 26, #56

Problem 2
The circuit below is used to measure the internal resistance of a battery. The battery being tested is a NiMH battery cell.

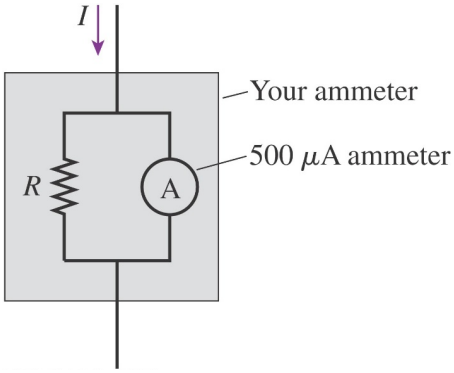
a. A fresh battery is being tested, and it is found that the voltage V_{out} is 2.28 V with the switch open and 2.27 V with the switch closed. Find the internal resistance of the battery.
b. The same battery is tested one year later, and V_{out} is found to be 2.2 V with the switch open but 0.31 V with the switch closed. Find the internal resistance of the battery.



Problem 3
For the circuit below, find the current through and voltage across each resistor. Place your results in a table for ease of reading.



Problem 4
A circuit you are building needs an ammeter that goes from 0 mA to a full-scale reading of 50 mA. Unfortunately, the only ammeter in the storeroom goes from 0 μA to a full-scale reading of only 500 μA. Fortunately, you have just finished a physics class, and you realized that you can make this ammeter work by putting a resistor in parallel with it, as shown in the Figure below. You have measured that the resistance of the ammeter is 50.0 Ω, not the 0 Ω of an ideal ammeter.
(a) What value of R must you use so that the meter will go to full scale when the current I is 50 mA?
(b) What is the effective resistance of your ammeter?



Problem 5
Use KCL/KVL method to solve Ch 26 # 32

Problem 6
Use KCL/KVL method to solve Ch 26 #33

Problem 7
Use KCL/KVL method to solve Ch 26 #34

Problem 8
Ch 26 #36

Problem 9
Let $\varepsilon_1 = 6V$, $\varepsilon_2 = 10$ V, $r_1 = 0.01\ \Omega$, $r_2 = 0.02\ \Omega$, and $R = 0.01\ \Omega$.
(a) Use junction and loop rules to solve for currents in each branch.
(b) What is the voltage across R?
(c) Calculate the heating power on each resistor. For each battery, determine if it is discharging or charging. Calculate the rate of charging or discharging.