



Parallel Circuits

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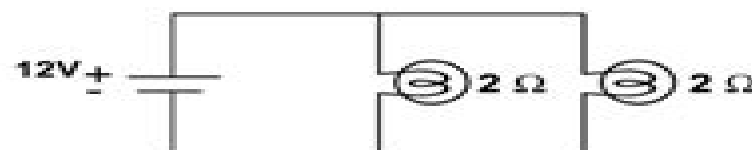
A parallel circuit has at least one point where the circuit divides, creating more than one path for current. Each path is called a branch. The current through a branch is called branch current. If current flows into a branch in a circuit, the same amount of current must flow out again. This rule is known as **Kirchoff's current law**.

Because each branch in a parallel circuit has its own path to the battery, the voltage across each branch is equal to the battery's voltage. If you know the resistance and voltage of a branch you can calculate the current with Ohm's Law ($I = V/R$).

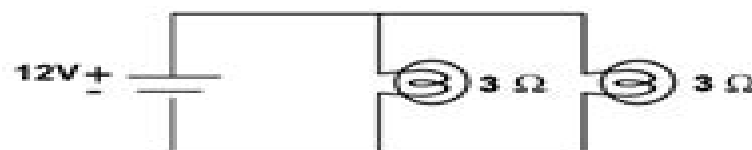
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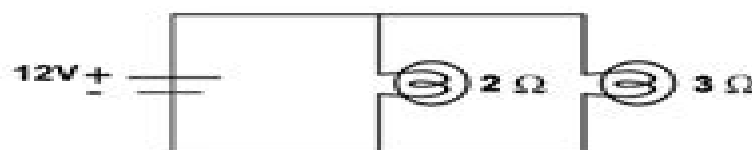
1. Use the parallel circuit pictured right to answer questions (a) - (d).
 - a. What is the voltage across each bulb?
 - b. What is the current in each branch?
 - c. What is the total current provided by the battery?
 - d. Use the total current and the total voltage to calculate the total resistance of the circuit.



2. Use the parallel circuit pictured right to answer questions (a) - (d).
 - a. What is the voltage across each bulb?
 - b. What is the current in each branch?
 - c. What is the total current provided by the battery?
 - d. Use the total current and the total voltage to calculate the total resistance of the circuit.



3. Use the parallel circuit pictured right to answer questions (a) - (d).
 - a. What is the voltage across each resistor?
 - b. What is the current in each branch?
 - c. What is the total current provided by the batteries?



- d. Use the total current and the total voltage to calculate the total resistance of the circuit.

4. Use the parallel circuit pictured right to answer questions (a) - (c).
 - a. What is the voltage across each resistor?
 - b. What is the current in each branch?
 - c. What is the total current provided by the battery?



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