**Notes on Parallel Circuits**

[What is a Parallel Circuit](https://www.youtube.com/watch?v=YaBdEvJpvMk&t=33s)  
In a Parallel circuit, you can turn off one light without turning off all of the lights. This is because there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pathways in which the electrons can travel.

[Comparing Series and Parallel Circuits](https://www.youtube.com/watch?v=x2EuYqj_0Uk)

In Series circuits, there is only \_\_\_\_\_\_\_\_\_\_\_pathway for electricity to travel.  
When more resistance is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the current goes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the bulbs are not as bright.  
Current is \_\_\_\_\_\_\_\_\_\_\_\_\_ everywhere in a series circuit.  
Sum of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will equal total voltage.

In Parallel circuits, there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pathways for electricity to travel.  
When more resistance is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the current is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the bulbs remain bright.  
Sum of two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pathways will equal total current.

[How to solve a Parallel Circuit](https://www.youtube.com/watch?v=h_yPktKnHq4&t=170s)

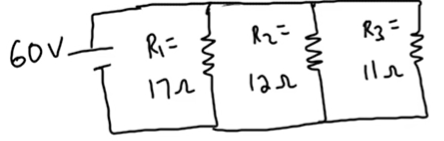
Solving for Resistance, Current, and Voltage in a Parallel circuit.

Rules:   
1- Resistance: Total resistance varies inversely with the current. Resistance is inverse to current.  
1/RT = 1/R1 + 1/R2 + 1/R3…

2- Current: Current is being lost at each branch, then adds up to what it was.  
IT = I1 + I2 + I3…

3- Voltage: The same throughout.  
ΔVT= ΔV1 =ΔV2 =ΔV3

4- Ohms Law  
V= IR



Given information is BLUE.

|  |  |  |
| --- | --- | --- |
| RT = | IT = | VT = 60 V |
| R1 = 17Ω | I1 = | V1 = |
| R2 = 12Ω | I2 = | V2 = |
| R3 = 11Ω | I3 = | V3 = |

Step 1- Place given information in chart.  
Step 2- Voltage is \_\_\_\_\_\_\_\_\_\_\_\_\_ throughout.  
Step 3- Solve for total resistance in circuit  
 1/RT = 1/R1 + 1/R2 + 1/R3…  
 1/RT = 1/\_\_\_\_ + 1/\_\_\_\_\_ + 1/\_\_\_\_\_   
 1/RT = \_\_\_\_\_\_\_\_\_\_  
 RT =  
 RT =

Step 4- Solve for total current  
 V=IR, where I = V/R

IT= \_\_\_\_\_\_ V/\_\_\_\_\_\_\_ Ω  
 IT = \_\_\_\_\_\_\_\_ A

Step 5- Solve for I1, I2, and I3  
 Using I=V/R

I1 = 60V/\_\_\_\_\_\_Ω  
 I1 = \_\_\_\_\_\_\_\_

I2 = 60V/\_\_\_\_\_\_Ω  
 I2 = \_\_\_\_\_\_\_\_

I3 = 60V/\_\_\_\_\_\_Ω  
 I3 = \_\_\_\_\_\_\_\_