**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 = \_\_\_\_\_\_\_\_