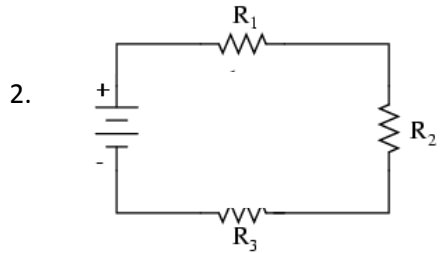
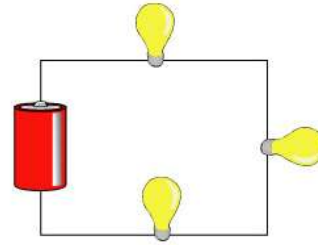


- In the series circuit to the right, label the resistance (R), the potential difference (V), and the current (I).

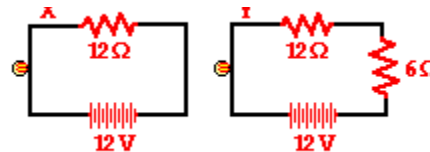


In the series circuit to the left, the first (R_1) and second resistors (R_2) provides a resistance of 8 ohms each and the third resistor (R_3) provides a resistance of 4 ohms. The voltage source provided in the circuit is 10 volts.

- What is the total resistance of the circuit?
 - What is the total current flowing through the circuit?
 - What is the current running through the first resistor (R_1)?
 - If the third resistor is removed (R_3), what happens to the current in the circuit?
 - If another resistor of 4 ohms is added, what happens to the current in the circuit?
- A series circuit has 4 resistors connected to a 120 V potential difference. The resistors have resistances of 15 Ω , 45 Ω , 60 Ω , and 80 Ω ?
 - Draw a picture of the circuit.
 - What is the total resistance of the circuit?
 - What is the total current flowing through the circuit?
 - Which resistor has the most current flowing through it? Explain your answer.
 - Which resistor creates the greatest drop in potential difference?
 - What is the ΔV for this resistor?

4. A series circuit has 4 resistors connected to a 45.0 V potential difference. The resistors have resistances of 5.0 Ω , 8.0 Ω , 10.0 Ω , and 12.0 Ω ?
- Draw a picture of the circuit.
 - What is the total resistance of the circuit?
 - What is the current flowing through the 8.0 Ω resistor?
 - What is the drop in potential difference through the 10.0 Ω resistor?
 - If another 5.0 Ω resistor was connected in series, describe what would happen to the circuit's total resistance?
 - If another 5.0 Ω resistor was connected in series, describe what would happen to the circuit's total current?

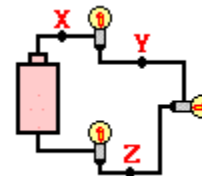
5. A 12-V battery, a 12-ohm resistor and a light bulb are connected as shown in circuit X below. A 6-ohm resistor is added to the 12-ohm resistor and bulb to create circuit Y as shown. The bulb will appear _____. (*dimmer in circuit X, dimmer in circuit Y or the same brightness in both circuits*)



6. Compare circuit X and Y shown to the right. Each is powered by a 12-volt battery. The voltage drop across the 12-ohm resistor in circuit Y is _____ the voltage drop across the single resistor in X. (*smaller than, larger than or the same as*)

7. Three identical light bulbs are connected to a D-cell as shown below to the right. Which one of the following statements is true?

- All three bulbs will have the same brightness.
- The bulb between X and Y will be the brightest.
- The bulb between Y and Z will be the brightest.
- The bulb between Z and the battery will be the brightest.



8. Three identical light bulbs are connected to a battery as shown above. Which adjustments could be made to the circuit that would increase the current being measured at X? Circle all that apply.

- Increase the resistance of one of the bulbs.
- Increase the resistance of two of the bulbs.
- Decrease the resistance of two of the bulbs.
- Increase the voltage of the battery.
- Decrease the voltage of the battery.
- Remove one of the bulbs.