

Series or Parallel?

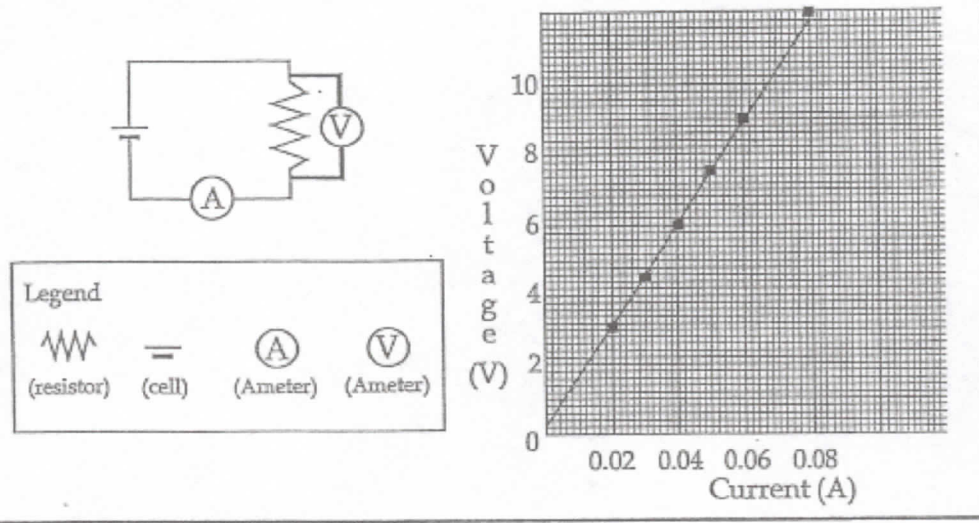
Identify if the Statement describes a Series or Parallel Circuit.

1. _____ Resistors decrease the total resistance of the circuit.
2. _____ Resistors increase the total resistance of the circuit.
3. _____ The voltages across each of the loads in the circuit add up to the voltage supplied by the source.
4. _____ There is only one pathway for electrons to flow.
5. _____ The current is the same throughout the circuit.
6. _____ The current through each pathway of the circuit adds up to the total current supplied by the source.
7. _____ There are junction points in the circuit.
8. _____ There is more than one pathway for current to flow.
9. _____ The voltage across each resistor in the circuit is the same.
10. _____ The sum of voltages across the loads equals the total voltage supplied by the battery.

Level 3-4 Graph Analysis use the following graph to answer Q's

Figure 3

As cells were added to the following circuit, voltage and current readings were recorded. The graph displays the results.



List 3 things you have learned about the voltage-current relationship during the labs you have done in this unit. DO NOT write out all three versions of Ohm's Law please. Only include one point about resistance.

1.

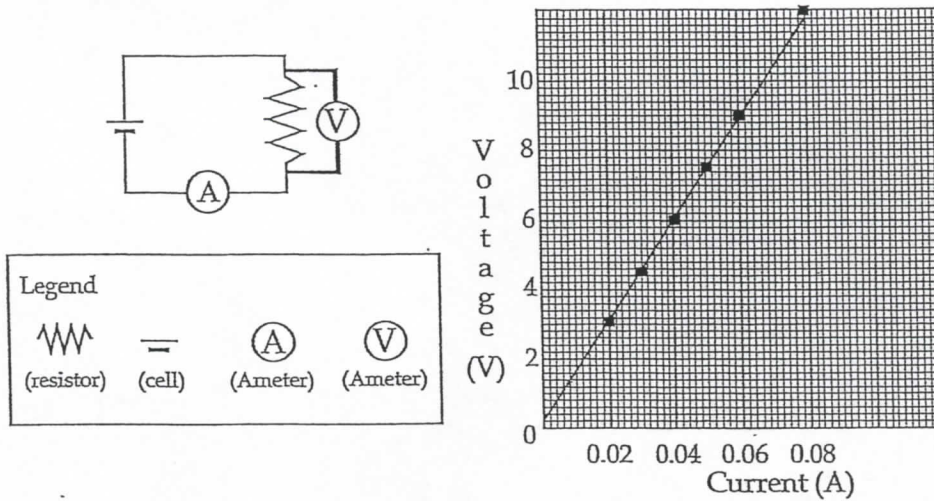
2.

3.

4. Suggest a title for the graph.

Figure 3

As cells were added to the following circuit, voltage and current readings were recorded. The graph displays the results.



5. (refer to figure 3) What is the resistance of the resistor in the circuit?

- a) 0.54Ω
- b) 16Ω
- c) 160Ω
- d) 15Ω
- e) 150Ω

6. (refer to figure 3) If the voltage across the resistor is 1.48 V , what will the current measure?

- a) 0.006 A
- b) 0.008 A
- c) 0.01 A
- d) 0.02 A
- e) 0.03 A

7. (refer to figure 3) If the current reads 0.06 A , what will the voltage across the resistor read?

- a) 9 V
- b) 10 V
- c) 11 V
- d) 2500 V
- e) 0.0004 V

8. The current through a $120\ \Omega$ resistor is $2.0\ \text{A}$. Calculate the voltage across this resistor.

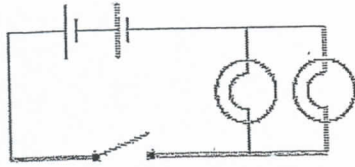
9. A $120\ \Omega$ resistor is connected to a $12\ \text{V}$ battery. Calculate the current through the resistor.

10. The current through a load is $75\ \text{mA}$. If the potential difference across the load is $12\ \text{V}$, what is the resistance of the load?

11. Draw the following circuits using standard symbols and rectangular shapes for the conducting wires:

a. Containing two lamps in series with a switch and a single cell.

b. Containing three lamps in parallel with three switches that each control one lamp and a battery of two cells.



12. How many pathways are in the above circuit?

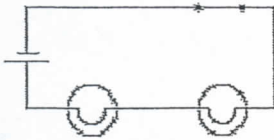
13. Is the above a series circuit or a parallel circuit?

14. What is the load in this circuit?

15. Will this circuit work? Why or why not?

16. Assume the circuit is closed, if light bulb 2 is unscrewed, what will happen to light bulb 1?

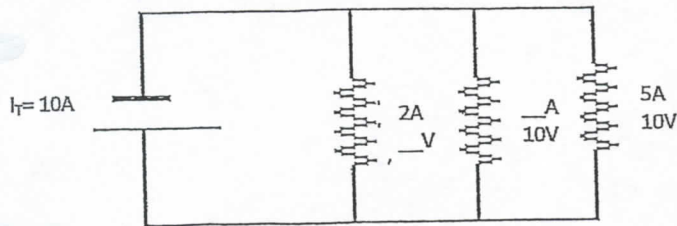
17. Is the following a series circuit, or a parallel circuit?



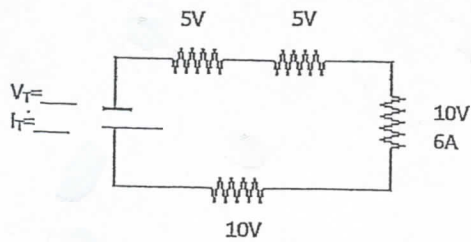
18. If light bulb 1 is unscrewed, what will happen to light bulb 2?

Level 5-6

4. What is the voltage and current across the resistors in the following circuit?



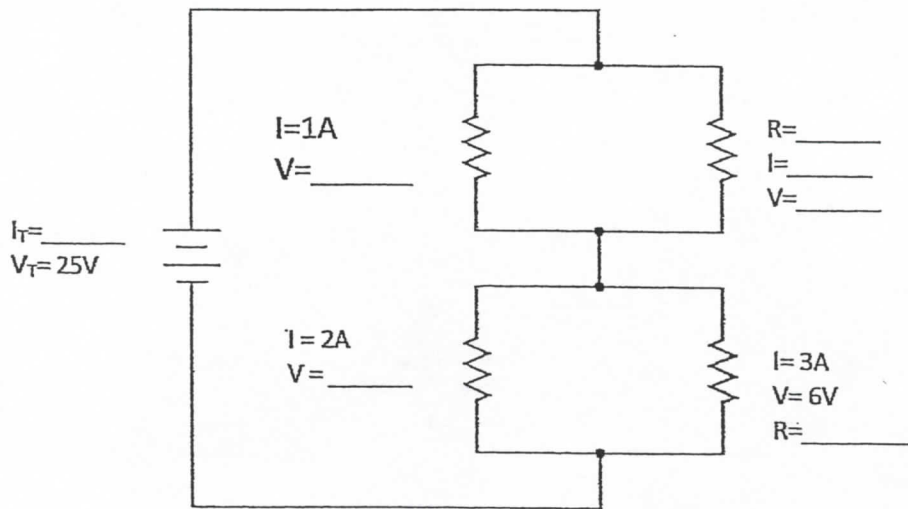
5. What are the total voltage and current of the following circuit?



6. Describe and explain how and why **current** changes or stays the same in a **series** circuit?
7. Describe and explain how and why **voltage** changes or stays the same in a **series** circuit?
8. Describe and explain how and why **current** changes or stays the same in a **parallel** circuit?
9. Describe and explain how and why **voltage** changes or stays the same in a **parallel** circuit?

Level 7-8 Questions

1. Fill in the missing voltage and current values.



2. Draw a circuit diagram for a circuit containing a 6 V battery, each cell is 3 V, connected to a light bulb, a resistor, and a motor (the symbol for a motor is below). An ammeter is connected to measure the current through the motor. A switch is connected to control only the motor.

