

Circuit Lab /27

Aim: To find the total current intensity and potential difference using an ammeter and voltmeter and to apply the results to find the resistance, power and energy of a circuit.

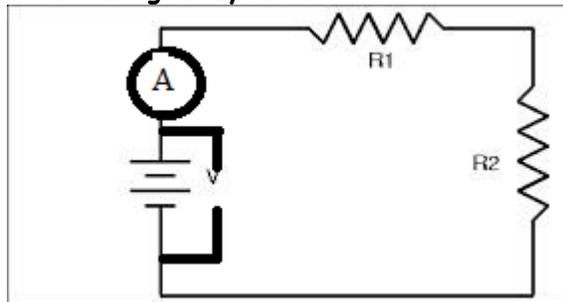
Materials:

- power supply
- wires
- ammeter /2
- voltmeter
- 2 resistors

Procedure 1:

- 1 - Build a series circuit with the resistors labeled R1 and R2.
- 2- Set the power supply to 2 V.
- 3- Place the voltmeter to get the total voltage of the circuit.
- 4- Place the ammeter to get the total current of the circuit.
- 5- Record results obtained.

Draw the circuit built using all symbols.

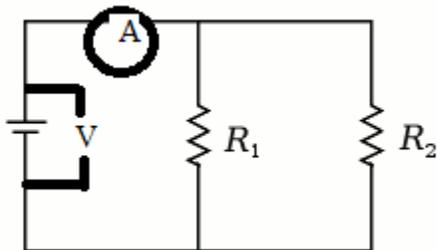


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Procedure 2:

- 1 - Build a parallel circuit with the resistors labeled R1 and R2.
- 2- Set the power supply to 2 V.
- 3- Place the voltmeter to get the total voltage of the circuit.
- 4- Place the ammeter to get the total current of the circuit.
- 5- Record results obtained.

Draw the circuit built using all symbols. /2



Results /6 Title /1

Results:

Results obtained			Calculations		
	Series	Parallel	* use 1 hour of time for the energy formula.		
Voltage (V)	2	2		Series	Parallel
Current intensity (A)	0.007	0.03	Power (IV) (W)	0.014	0.06
			Energy (Pt) (J)	50.4	216
			Resistance (V/I) (Ω)	285	66.7

Analysis Questions-

1. Both circuits built used 2 V and the same resistors, why was the current intensity value not the same for each circuit?

Series has one pathway which makes a high resistance so current intensity is low because of the higher resistance. Parallel has 2 pathways which makes a lower resistance, lower resistance allows the current to be higher./3

2. Different types of circuits were built, why was the total voltage the same for each?

Total voltage comes from the power supply and this was set to 2 V for each circuit. /1

3. Which circuit produced more power? Why?

The parallel circuit produced more power because it has 2 pathways which makes less resistance. The less resistance allows for greater current intensity. More current intensity = more power ($P=IV$)./3

4. Which circuit produced more energy? Why?

The parallel circuit produced more energy because it has 2 pathways which makes less resistance. The less resistance allows for greater current intensity. More current intensity = more energy ($E=IVt$)./3

5. Explain how time affects the energy consumed in a circuit.

More time the circuit is on for more energy it consumes. /1

6. Explain how the strength of resistors affects the power in series and parallel circuits.

In a series circuit or a parallel circuit, the more resistance there is the lower the current intensity value will be. The less power will be produced. If there is weak resistance, there will be high current intensity which will produce more power./3

↑ resistance = ↓ current = ↓ power or energy

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