**Questions for Series Circuits**

1. The total voltage of the circuit is equal to the sum of the voltage used by all the components. Write algebraically.
2. The total current equals to the current at any point in the circuit. Write algebraically.
3. The total resistance equal to the sum of the resistances wired in the circuit. Write algebraically.
4. If one lamp is unscrewed from the socket, what happens to the circuit? Explain.
5. Draw a wiring diagram showing potential difference (V) provided to a circuit containing four resistors wired in a series. Supply a switch to open and close the circuit. Also wire a voltmeter to show total voltage of the circuit and an ammeter to show total current.
6. What relationship exists between total voltage and total current?
7. What is the relationship between total resistance and total current?
8. Write algebraically the relationships described in question 6 & 7.
9. Determine the power consumed by a single 10 ohm resistance connected to a 6 volt battery if it draws a current of 6 amps.
10. How many joules are in 1 kWh?
11. If the resistor is connected from 8:00 am to 3:00 pm, how much energy will it consume
12. kWh
13. joules

**Problems**

1. A simple circuit is composed of 24 ohms resistor connects to a 6 volt source. An ammeter is wired to show total current and a voltmeter to show total volts.
2. Draw the circuit diagram
3. Determine the current that would flow through the resistor
4. Determine the rate at which the electricity is used by the resistor (Power)
5. Determine the energy used in Joules used by the resistor in 1 hour.
6. What effect would increasing the voltage have on the current?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. What effect would increasing the resistance have on current?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. Draw a diagram of the following circuit. A 9 Volt sources provides the energy to a 50 ohms resistor and a 25 ohm resistor wired in series. Connect a voltmeter to show voltage, an ammeter to show current and a switch.
9. Determine the total resistance
10. Determine the current for the circuit
11. Determine the voltage used by the 50 ohms resistor
12. Determine the voltage used by the 25 ohms resistor
13. Determine the total power used by the circuit
14. Determine the energy consumed if the circuit operates for 3 hours.
15. Three resistors are wired in series to a 12 Volt source. R1 is 6 ohms, R2 is 12 ohms and R3 is unknown. The ammeter is wired to provide a total current and it reads 0.5 amps. The voltmeter gives volts.
16. Draw a circuit diagram
17. Determine the voltage used by R3
18. Determine the resistance of R3
19. Determine the power consumed by R3
20. Determine the power consumed by the entire circuits
21. Draw a wiring diagram showing three resistors of 2 Ω , 3 Ω, 5 Ω resistance wired in series to a 6 volt source. Included a switch, ammeter and a voltmeter in the schematic.
22. Determine the total resistance of this circuit
23. Determine the total current through this circuit
24. Determine the voltage drop across each resistor.
25. Does the sum of the voltage drop of each resistor equal the total voltage supplied by the battery.
26. Determine the power consumed by each resistor
27. Determine the total power consumer by the circuit.
28. Six resistors, each of 20 ohms are wired in series to a 12 volt source

a) Draw a circuit diagram

b) Determine the total resistance.

c) Determine the total current.

d) Determine the voltage drop through a single resistor

e) Determine the total voltage drop through the circuit.