Simple & Series Circuits – Chapter 23

Simple Circuit

Diagram of a 30 Ω resistor connected to a 90 V battery.

Find the following for the above diagram:
1. The voltage drop (loss) for the 30 Ω resistor. _____
2. Draw a voltmeter measuring the voltage drop for the 30 Ω resistor.
3. On the diagram draw and label an arrow for the direction of the conventional current.
4. On the diagram draw and label an arrow for the direction of the electron flow.
5. Draw an ammeter measuring the current through the 30 Ω resistor.
6. Calculate the current flowing through an ammeter connected to the circuit.

7. Calculate the power rating of the 30 Ω resistor in this circuit.

8. How much heat is produced by the 30 Ω resistor in 2 minutes?

9. How much charge flows through the circuit in 4 seconds?

Simple & Series Circuits – Chapter 23

Series Circuit

    Formulas
        Resistance

        Current

        Voltage

Diagram of a 12 Ω resistor and a 6 Ω resistor connected in series to a 9 volt battery and a switch installed between the two resistors.

Find the following for the above diagram:
1. The total resistance of the circuit.
2. The voltage drop (loss) for the 12 Ω resistor. _____
3. Draw a voltmeter measuring the voltage drop for the 12 Ω resistor.
4. On the diagram draw and label an arrow for the direction of the conventional current.
5. On the diagram draw and label an arrow for the direction of the electron flow.
6. What happens if the switch is opened?
7. Draw an ammeter measuring the current through the 6 Ω resistor.
8. Calculate the current flowing through an ammeter connected to the circuit.

9. Calculate the power rating of the 6 Ω resistor in this circuit.

10. How much energy is produced by the battery in 2 minutes?

11. How much charge flows through the circuit in 6 seconds?