Ohm's Law

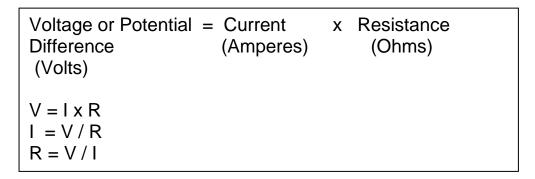| Voltage or Potential = Current x Resistance |
|---|
| Difference (Amperes) (Ohms) |
| (Volts) |
| |
| V = I x R |
| I = V / R |
| R = V / I |

Questions

1. In what units are the following measured: (a) voltage or potential difference (b) current (c) resistance?
2. State how voltage and current are measured.

Potential Difference (Volts)	Current (Amps)	Resistance (Ohms)
12	4	
9	3	
6	2	
3	1	

Current (amps)

Potential Difference (volts)

3. On the axes above, graph the above data with potential difference on the X-axis and current on the Y-axis. (a) What do you notice about the graph? (b) Using the resistance rule, calculate the resistances in the table. What do you notice?

4. What voltage or potential difference is used by an electrical appliance that draws 0.4 amps of current and has a resistance of 3 ohms?
5. A light bulb uses 240 volts of electricity and draws a current of 2 amps. What is its resistance?
6. Calculate the current used by a television that runs on 240 volts and has a resistance of 600 ohms.
7. Three light bulbs each drawing 240 volts and 0.3 amps are connected in series. What is the resistance of each light bulb and what is the total resistance?
8. Complete the following table:

	Current (amps)	Resistance (ohms)	Voltage (volts)
(a)	0.1	600	
(b)	0.25	1000	
©	0.4		240
(d)	0.5		240
(e)		1000	200

Answers
1. (a) straight line graph (b) R = 3 ohms   2.(a) volt (b) amp (c) ohm
3. Voltage measured by voltmeter wired in parallel; Current measured by ammeter wired in series 4. 1.2volts   5. 120 ohms
6.0.4 ohms 7. 800 ohms ; Add them if they are in series to get 2400 ohms 8. (a) 60 volts (b) 250 volts (c)600 ohms (d) 480 ohms (e) 0.5 amps