GRCI Science
SNC1D

Measuring Electrical Energy

Electrical Energy Use in the Home

- All electrical appliances have an _____ _____ that shows how much _____ is required to run the appliance
- The unit of _____ is the _____ (eg. A 100 W lightbulb)
- The _____ _____ required to operate the appliance is measured in _____ (kW · h).

Example 1 a) How much electrical energy is used in one month by a television (power rating 80W) that is watched by a teenager (6 hrs/day)?

The Cost of Electricity

Cost = ×

Example 1 b) How much do you pay for the energy to run your television if your utility company charges you $ 0.08 / kW · h?

<u>Ohm's Law Practice:</u> Please answer the following questions on a separate piece of lined paper.

1. Solve for the unknown in each of the following. Please state the equation that you used.

a) I = 2.5 A	V = ?	R = 4.1 Ω
b) I = ?	V = 24 V	R = 12 Ω
c) I = 3.3 A	V = 24V	R = ?
d) I = 0.051 A	V = ?	R = 0.78 Ω
e) I = ?	V = 64 V	R = 15 Ω
f) I = 5.5 A	V = 32 V	R = ?

2. What happens to the current in a closed electric circuit if the voltage is increased and the resistance remains constant?

3. What happens to the current in a closed electric circuit if the resistance is increased and the voltage remains constant?

4. An electric tea kettle operates on 120 V. If a 12.5 A current flows through the kettle, then what is the kettle's resistance ?

5. An electric iron (for clothes) has a resistance of 150 Ω. How much current will flow when the voltage of the source that the iron is plugged into is 240 V?

6. A 75 Ω clock is constructed so that it must have a current of 0.16 A. For what voltage was the clock designed?

<u>Energy Pracitce:</u> Please answer the following questions on a separate piece of lined paper.

Do Q #12 on page 542.