Name _____Period _____Date _____

Electric Power : Physical Science

- Recall that the rate energy is converted from one form to another is *power.*

- The unit of power is the watt (or kilowatt). So in units form.

Electric power (watts)= current (amperes) x voltage (volts),

where 1 watt = 1 ampere x volts.

1. What is the power when a voltage of 120 V drives a 2-A current through a device?

_____

2. What is the current when a 60-W lamp is connected to 120 V?

_____

3. How much current does a 100-W lamp draw when connected to 120 V?

_____

4. If part of an electric circuit dissipates energy at 6 W when it draws a current of 3 A, what voltage is impressed across it?

_____

5. Explain the difference between a kilowatt and a kilowatt-hour.

_____

6. One deterrent to burglary is to leave your front porch light on all the time. If your fixture contains a 60-W bulb at 120 V and your local power utility sells energy at 8 cents per kilowatt-hour, how much will it cost to leave the bulb on for the whole month? Show your work on the other side of this page.

LIVEWORKSHEETS

Electric Power Problems Name: _____

Directions: Show your work and include units.

1. A 750 Watt hairdryer is used for 15 minutes. Calculate the Kwhr used. Calculate the cost to use 15 min. every day for 1 year @ 8 cents/kwhr

2. A room has a 60 watt, a 100 watt, and a 150 watt light bulb. How much does it cost to use all of the lamps for 2.5 hr @ 8 cents/ kwhr?

3. A current of 11 Amps @ 240 Volts flows through an electric range. If it is used an average of 1 hour/day:
   a. Calculate the watts used by the range.

   b. Calculate the kwhr used per month.

   c. What is the cost to run the range for one **month** at 8 cents/kwhr?

   d. What is the cost to run the range for one **year** at 8 cents/kwhr?

4. A 615 watt refrigerator runs 24 hours/day.
   a. Calculate the cost to run it for one month (30 days).

   b. Calculate the cost to run it for one year (365 days).

5. A bulb is plugged into a 120 Volt outlet. The resistance of the bulbs is 330 ohms.
   a. Calculate the current through the bulb.

   b. Calculate the watts and kw.

   c. Calculate the cost to run the bulb for 10 hours @ 8 cents/kwhr.

LIVEWORKSHEETS