

HOME ENERGY STUDY PROBLEMS

1. What is the power when a voltage of 110V drives a 3A current through a device?
2. What is the current when a 80W lamp is connected to 120V?
3. How much current does a 125W lamp draw when connected to 120V?
4. What is the resistance of the light bulb in problem #3?
5. If part of an electric circuit dissipates energy at 100W when it draws a current of 5A, what voltage is impressed across it?
6. One deterrent to burglary is to leave a floodlight on in the back yard. If your fixture contains a 100W halogen bulb at 120V and your local power utility sells energy at 18 cents per kilowatt-hour, how much will it cost to leave the bulb on for- the whole month?
7. Suppose you switched to a 25W high efficiency LED bulb, how much will it cost to leave the bulb on for- the whole month? *Show your work*
8. A 1200 Watt hairdryer is used for 20 minutes. Calculate the Kwhr used. Calculate the cost to use 20min. every day for 1 year 18cents/kwhr. *Show your work*
9. A refrigerator says 7.2A on the inside sticker, how many watts does it use. If

electricity cost 18 cents per kilowatt-hour, how much will it cost to run the fridge for the whole month? *Show your work*

10. A current of 10.5 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 18cents /kwhr?

d. What is the cost to run the range for one year at 18cents/kwhr?

11. A 560 watt deep freezer runs 24 hours/day.

a. Calculate the cost to run it for one month at 18cents /kwhr?

b. Calculate the cost to run it for one year 18cents/kwhr?

12. A bulb is plugged into a 120 Volt outlet. The resistance of the bulbs is 1250 ohms.

a. Calculate the current through the bulb.

b. Calculate the watts and kw.

c. Calculate the cost to run the bulb for 12 hours 18cents/kwhr.

d. Calculate the cost for 1 month.

e. Calculate the cost for 1 year.