

## Electric Bills

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1. Power is the rate at which energy is converted and is measured in watts. One watt is equal to one \_\_\_\_\_ per \_\_\_\_\_. There are \_\_\_\_\_ W in 1 kW.
2. Given the power of something, you calculate the amount of energy it used by multiplying \_\_\_\_\_ and \_\_\_\_\_. Therefore, a “kilowatt-hour” (kWh) is a unit of \_\_\_\_\_. How many Joules are in 1 kWh? \_\_\_\_\_ (show work below)
3. A 60 W light bulb runs all day for 3 days.
  - a. What is the power rating of the light bulb in kW?
  - b. How many total hours is the light bulb in use?
  - c. What is the total energy used in kWh?
  - d. If the electric company charges \$0.12 per kWh, how much does it cost to keep the light bulb on day and night for 3 days?
4. A 1500 W air conditioner is in operation for 5 hours.
  - a. What is the power rating of the air conditioner in kW?
  - b. What is the total energy used in kWh?
  - c. If you pay 14 cents per kWh, how much does it cost to run your air conditioner for 5 hours?
5. How many kWh (kilowatt-hour) of energy does a 550 W toaster use in the morning if it is in operation for a total of 10 min? At a cost of 12 cents/kWh, how much would this add to your monthly electric bill if you made toast everyday for 1 week?
6. At \$0.110 per kWh, what does it cost to leave a 40 W porch light on day and night for a year?

Answers: 1) Joule, second, 1000      2) power, time, energy      3. a) 0.06 kW      b) 72 hrs  
 c) 4.32 kWh d) \$0.52      4. a) 1.5 kW      b) 7.5 kWh      c) \$1.05      5) \$0.077      6) \$38.54