Joule's Law

1.) Your oven has a power rating of $5000\ W$.

   a. How many kilowatts is this?

   b. If the oven is used for two hours to bake cookies, how many kilowatt·hours ($kW \cdot h$) are used?

   c. If your town charges $0.15 $per\ kW \cdot h$, what is the cost to use the oven to bake the cookies?

2.) You use a $1200.\,W$ hair dryer for ten minutes each day.

   a. How many minutes do you use the hair dryer in a month? (Assume 30 days in the month.)

   b. How many hours do you use the hair dryer in a month?

   c. What is the power of the hair dryer in $kilowatts$?

   d. How many $kilowatt \cdot hours$ of electricity does the hair dryer use in a month?

   e. If your town charges $0.15 $per\ kW \cdot h$, what is the cost to use the hair dryer for a month? Given The power of the heater is $1500.\,W$. The heater was used for three hours.

3. Calculate the power rating of a home appliance (in $kilowatts$) that uses $8.0\ A$ of current when plugged into a 110 V outlet.

4. Calculate the power of a motor that draws a current of $2.0\ A$ when connected to a $12\ V$ battery.

5. Your alarm clock is connected to a $110\ V$ circuit and draws $0.50\ A$ of current.

    a. Calculate the power of the alarm clock in $Watts$.

    b. Convert the power to $kilowatts$.

    c. Calculate the number of $kilowatt \cdot hours$ of electricity used by the alarm clock if it is left on for one year.

    d. Calculate the cost of using the alarm clock for one year if your town charges $\$0.15\ per\ kW \cdot h$.