Practice

1. What is the power rating on your toaster oven if it is connected to a 110 V outlet in the wall and it has a current intensity of 8.0 A?

P = ?
V = 110V
I = 8.0A

P = IV
= 8.0A × 110V
= 880W

2. What is the power rating on your hair dryer that consumes 300 J of energy in 30 s?

P = ?
E = 300J
t = 30s

$P = \frac{E}{t} = \frac{300J}{30S} = 10W$

3. a) What is the power rating of a computer that is connected to a 120 V outlet in the wall and has a current intensity of 11 A?

P = ?
V = 120V
I = 11A

P = 11A × 120V
= 1320W

b) How much would it cost to run the computer for 10 hours a day? à 0.08$/kWh

P = 1320W ÷ 1000 = 1.32kW
t = 10 hours
E = PΔt

① E = 1.32kW × 10 hours
= 13.2kWh

② cost = 13.2 kWh × 0.08$/kWH = 1.06$

4. a) Ms. Kelly fell asleep last night with her light on in her room. The light bulb is 100W. If she fell asleep at 11:00pm and woke up at 6:00 am how much energy was used by the light while she was sleeping?

E = ?
P = 100W ÷ 1000 = 0.1kW
t = 7h

E = Pt
= 0.1kW × 7h
= 0.7kWh

b) If Hydro Quebec charges 8 cents for every kWh used, how much will leaving the light on cost Ms. Kelly?

cost = 0.7kWh × 0.08$/kWh

= 0.06$ → 6 cents.