Name Key Hour

Electricity Practice Quiz:

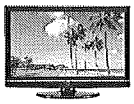
Problem 1 How much current is drawn by a coffee pot with a resistance of 25 Ohms?

$\Delta V = IR$

$120 = I(25)$

$I = 4.8\ A$

Problem 2 Calculate the resistance of a TV with a power of 1200 W.



① $P = I\Delta V$

$1200 = I(120)$

$I = 10\ A$

② $\Delta V = IR$

$120 = (10)R$

$R = 12\ \Omega$

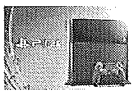
Problem 3 If all of your household electrical appliances do 1122.~~45~~ kWh of electrical work in one month, convert that to Joules. ***Remember: 1 Joule= 1 Watt-second.***

$1122\ kW\cdot h \times \frac{1000W}{1kW} \times \frac{3600s}{1hr} = 4039200{,}000$ or $4.0392 \times 10^9\ watt\cdot sec$

Problem 4 Convert 35,000,000 J into ~~watt·sec~~ kwh.

$35{,}000{,}000\ watt\cdot sec \times \frac{1kW}{1000W} \times \frac{1hr}{3600s} = 9.72\ kwh$

Problem 5 How much would it cost to run both a 1200 Watt washer for 30 min and a 4500 Watt dryer for 50 min?



washer:

$P = 1.2\ kW$

$\Delta t = \frac{30min}{60min} = 0.5hr$

$P = \frac{W}{\Delta t}$

$1.2 = \frac{W}{0.5} = 0.6\ kWh \times \$.101 =$

$1.2\ kW$

$\$0.06$

dryer:

$P = 4.5$

$\Delta t = \frac{50min}{60} = 0.833$

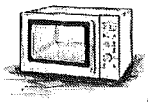
$4.5 = \frac{W}{0.833} = 3.75 \times \$.101$

$4.5\ kW$

$\$0.38$

add $\$0.44$

Problem 6 Calculate the cost to run a microwave that uses 8.5 A of current for 15 minutes.



$I = 8.5A$

$\Delta V = 120\ V$

$\Delta t = \frac{15min}{60} = 0.25hr$

① $P = I\Delta V$

$= 8.5(120)$

$P = 1020\ watts = 1.02kW$

② $P = \frac{W}{\Delta t}$

$1.02kW = \frac{W}{0.25hr} = 0.255 \times \$.101 =$

$\$0.026$ or $2.6¢$

Problem 7 You run the Electricity at home lab and find that it takes 5 sec for the disc to spin once when you have everything turned on.

a. If your Kh is 7.2 (That is your work!), what is the power your house is running at in Watts?

$\Delta t = \frac{5sec}{3600} = .00139hr$

$W = 7.2\ watt\cdot hr$

$P = \frac{W}{\Delta t} = \frac{7.2\ watt\cdot hr}{.00139\ hr} = 5184\ watts$

b. If you were to continue at that rate of power for 24 hours, how much would it cost?

$P = 5184W = 5.184kW$

$\Delta t = 24\ hr$

$P = \frac{W}{\Delta t}$

$5.184\ kW = \frac{W}{24} = 124.4\ kwh \times \$.101 = \$12.57$