## Electricity Calculations - Worksheet

Name: $\qquad$ Date: $\qquad$

Formulas: $\quad V=I x R \quad P=I x V \quad E=V x I \quad E=P \times t$

Watts = Joules per second

1. Warner likes waffles for breakfast. How much energy is used by a waffle maker that has a power rating of . 7501 kW and is operated for 3.6 h ?
using the current cost of electricity in Saskatchewan (13.267 cents per kWh) , how much did it cost to run the waffle maker.
2. Find the cost to run a 1200-watt microwave oven, if you make microwave popcorn in 5 minutes. (price per kWh is 13.267 cents)
3. A 615 W fridge runs 24 hours/day. How much energy would it use in the month of December (31 days)
4. (tougher question) - If an air conditioner uses 2400 watts of power, and runs on a 220 V circuit, how much current flows through the air conditioner?
5. At TV set uses a 12 A current and has a resistance of 10 ' $\Omega$, what is the voltage of the circuit?
6. Calculate the power of an electric toaster that uses $210,000 \mathrm{~J}$ while toasting the bread of 140 s .
7. Calculate the amount of energy a car battery releases as it is operated a starter motor. The current following through the motor was 350 A and the time the motor was operated was 8.2 seconds.
8. An electric motor uses 32000J of energy to produce 26000J of useful energy. The rest is wasted as heat and sound. Calculate the efficiency of the energy going into the motor.
9. A 45 W lightbulb is on for 90 minutes and will output $98,000 \mathrm{~J}$ of light energy. If the total energy the light used was $243,000 \mathrm{~J}$, what is the efficiency of the light bulb.
10. A new ipad pro will draw 12 W of power while it charges for 4.5 hours. Calculate the power used and then how much it will cost each time you charge it.
11. Tough one - plus conversions.

The wall charger for an iPhone is 900 mA . If you have it plugged into the wall for 2 hours, how much power have you consumed?

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