C:\Users\Nindi\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\K2A2K2DM\MC900384210[1].wmfCalculating Power, Energy & Cost

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| For the problems below, be sure to show ALL your work  including the formula and final units. |

1. A 6-volt battery produces a current of 0.5 amps. What is the **power** in the circuit?
2. A 100-watt light bulb is operating on 1.2 amperes of current. What is the **voltage**?
3. A potential difference of 120 volts is operating on a 500-watt microwave oven. What is the **current** being used?
4. A light bulb uses 0.625 amperes from a source of 120 volts. How much **power** is used by the bulb?
5. What **voltage** is necessary to run a 500-watt motor with a current of 200 amperes?

**For each of the next 3 Problems (#6 – 9), calculate the amount of energy used in both kilowatt-hours (kWh) and Joules (J).**

1. A 3000-watt water heater operating for 30 minutes.
2. A 1000-watt iron left on for 3 hours.
3. A 30-watt flashlight left on for 15 minutes.
4. What is the advantage of using kWh over J as a unit of measurement?
5. A microwave oven operates on 5 amps of current on a 110-volt circuit for one hour. Calculate the total **kilowatt-hours** used.
6. How much would it **cost** to run the microwave in Problem 10 if the cost of energy is $0.10 per kWh?
7. A refrigerator operates on 15 amps of current on a 220-volt circuit for 18 hours per day. How many **kilowatt-hours** are used per day?
8. If the electricity costs are $0.15 per kWh, how much does it **cost** to run the refrigerator in Problem 12 per day?
9. The meter reading on June 1 was 84502 kWh. On July 1, the meter read 87498 kWh. If the cost of electricity in the area was $0.12 per kWh, what was the **electric bill** for the month of June?
10. A room was lighted with three 100-watt bulbs for 5 hours per day. If the cost of electricity was $0.09 per kWh, how much would be **saved** per day by switching to 60-watt bulbs?

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| **Answers**: 0.55 kWh 59.4 kWh 83.3 V 3 W 5.4¢  $8.91 5400000J 5.5¢ $359.52  4.2 A 1.5 kWh 3 kWh 75 W  10800000 J 0.0075 kWh 2.5 V 27000 J |