## Science & Technology 404 Energy Efficiency Worksheet

- 1. A 240 V oven element draws 22 A of current.
  - a) Calculate the energy the element uses if it is cooking a turkey for 3.0 hours.
  - b) If the oven converted 37 065 000 J of that energy into heat, what is the energy efficiency of the oven?
- 2. A 120 volt light bulb has a current of 0.833A running through it for 30 seconds.
  - a) How much electrical energy does it use in this time?
  - b) If the light bulb is 5% efficient at converting electrical energy to light energy, how many joules of energy were actually used to light the room?
  - c) How many joules of energy were lost as heat?
- 3. An electric saw draws 15 A of current while operating on 120 volts.a) What is the power of the saw?
  - b) If the saw is operated for 3 minutes, calculate the energy used.
  - c) If the saw is 85% efficient, how much energy is used to turn the blade?

4. An outdoor floodlight has a power rating of 150 watts.

a) Calculate the current through the bulb if the voltage is 120 volts.

b) Calculate the total energy used by the bulb if it is left on for 10 hours overnight.

c) If the bulb converted 378 000 J of energy into light, what is the energy efficiency of the light bulb?

5. An 18 W compact fluorescent light bulb is operating at a voltage of 120 V.a) Calculate the resistance of the bulb?

b) How much electrical energy (in joules) is used if the bulb operates for 5 hours?

c) If the bulb is 17% efficient, how much energy lights the room?

6. A projector has a 500 W bulb in it.a) How much energy does it use when it runs for a 75 minute Science period?

b) If the bulb is 4% efficient, how much energy is lost as heat?