#### DO NOT WRITE ON THIS PAPER

## Station 1- Ohm's Law and Power Single-Step

Directions: show all work on a separate sheet of paper. Write the givens, show the formula, plug in numbers, calculate an answer, write with units, and circle your answer.



- 1) While cooking dinner, Malik's oven uses a 220 volt line and draws 8 A of current when heating to its maximum temperature. What is the resistance of the oven when it is fully heated? 27.5  $\Omega$
- 2) Amanda's hair dryer has a resistance of  $12 \Omega$ . How much current does the hair dryer draw? **10A**
- 3) How much power is used by an ultrasonic jewelry cleaner that draws 0.042 A of current from a 120 v line? 5.04 W
- 4) Which has more resistance when plugged into a 120 v line, a 1400 W microwave oven or a 150 W electric can opener? **Can opener**
- 5) How much current flows through the filament of a 60 W light bulb plugged in at home? **0.5A**
- 6) What is the resistance of a 800 W drill plugged into an outlet at home? 18.1  $\Omega$
- 7) A CD player uses a standard 1.5v battery. How much resistance is in the circuit if it uses 0.02 A of current? 75  $\Omega$

# **Textbook**

## Solve the following:

#'s 33-37 on page 698

#'s 15-18

#### DO NOT WRITE ON THIS PAPER

### Station 2- Ohm's Law and Power Multi-step

Directions: show all work on a separate sheet of paper. Write the givens, show the formula, plug in numbers, calculate an answer, write with units, and circle your answer.



- Valerie's 180 W electric rollers are plugged into a 120 v line in her bedroom. a) What current do the electric rollers draw? b) What is the resistance of the rollers when they are heated? a) 1.5A, b) 80 Ω
- 2) What current goes through a hair dryer plugged in at home if it has a resistance of 35 Ω? How much power does it use?
  a) 3.43A, b) 411.6 W
- 3) How much current does a 1000 W microwave use? How much resistance does it have? a) 8.33A, b) 14.4 Ω
- 4) A 60v circuit has a resistance of 90 Ω. How much current flows through it? How much power does the circuit use?
   a)0.66 A, b) 40W
- 5) 2 A flows through a circuit with a resistance of  $10 \Omega$ . What's the potential difference across the circuit? How much power is in the circuit? a) 20v, b) 40W
- 6) Your fuse panel at home has a 15 A circuit breaker. If more than 15 A try to flow in that circuit at one time, it will pop the breaker and shut down the circuit. You have popcorn in a microwave, and your mom turns on the TV. The microwave uses 1100 watts and the TV has  $50\Omega$  of resistance. If the TV and microwave are turned on at the same time, will they pop the circuit breaker? **No, Explain.**

# **Textbook**

Solve the following:

#'s 66, 68, 72, 74 on page 700-701

#'s 18, 22, 25 on page 696-697

#### DO NOT WRITE ON THIS PAPER

### Station 3- Energy and Cost

Directions: show all work on a separate sheet of paper. Write the givens, show the formula, plug in numbers, calculate an answer, write with units, and circle your answer.



1) How much energy is used when a 120 kW appliance is used for 5 hours? (unit for energy is kW-hr) 600 kW-hr

2) A TV has a power rating of 250 W. If it uses 3 kW-hrs of energy, how long has the TV been on? 12 hr

3) How much does it cost to light six 100 W light bulbs for 12 hours if the price of electricity is \$0.09 per kilowatt hour? **\$.036** 

- 4) Mrs. Olsen leaves her 0.9 kW electric coffee maker on each day as she heads off to work at 6am.because she likes to come home to a hot cup of coffee at 6pm. a) If the electric company charges Mrs. Olsen \$0.10 per kWh, how much does running the coffee maker all day cost her? b) What is the yearly cost to run the coffee maker (250 work days)?
  a) \$1.08, b) \$270
- 5) While writing this book, the author spent about 1000 h working on her personal computer that has a power input of 60 W. Seventy additional hours were spent with the 60 W computer and the 240 W printer running. How much did it cost for the energy use of all the time for those devices, at a cost of \$0.10 per kWh? **\$8.10**

## **Textbook**

Solve the following:

#: 75 on page 701