

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

### Ohm's Law & Power Practice Problems

1. A toaster oven is plugged into an outlet that provides a voltage difference of 120 V. What power does the oven use if the current is 10A? Show work:

Answer \_\_\_\_\_

2. A VCR that is not playing still uses 10.0 W of power. What is the current if the VCR is plugged into a 120 V electric outlet? Show work:

Answer \_\_\_\_\_

3. A flashlight bulb uses 2.4 W of power when the current in the bulb is 0.8 A. What is the voltage difference? Show work:

Answer \_\_\_\_\_

4. A refrigerator operates on average for 10.0 h a day. If the power rating of the refrigerator is 700 W, how much electrical energy does the refrigerator use in 1 day? (make sure to convert to kW) Show work:

Answer \_\_\_\_\_

5. A TV with a power rating of 200 W uses 0.8 kWh in one day. For how many hours was the TV on during this day? Show work:

Answer \_\_\_\_\_

6. Calculate the voltage difference in a circuit with a resistance of 25  $\Omega$  if the current in the circuit is 0.5 A. Show work:

Answer \_\_\_\_\_

7. A current of 0.5 A flows in a 60 W light bulb when the voltage difference between the ends of the filament is 120 V. What is the resistance of the filament? Show work:

Answer \_\_\_\_\_

8. A toy car with a resistance of 20  $\Omega$  is connected to a 3 V battery. How much current flows in the car? Show work:

Answer \_\_\_\_\_

9. The current flowing in an appliance connected to a 120 V source is 2 A. How many kilowatt-hours of electrical energy does the appliance use in 4 h? (2 equations used & convert watts to kW) Show work:

Answer \_\_\_\_\_

10. A calculator uses 9 V battery & draws 0.1 A of current. How much power does it use? Show work:

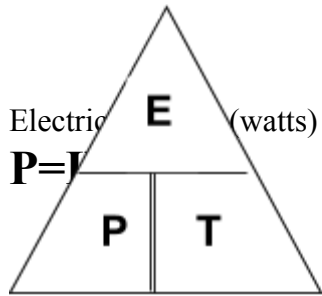
Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

Answer \_\_\_\_\_

**EQUATIONS:**

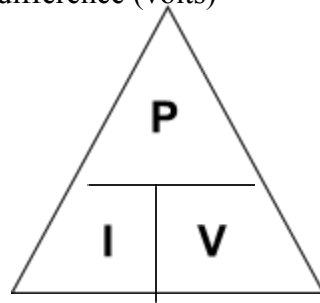
Electrical energy (kWh) = Power (kW) X time (h)

**$E=Pt$**



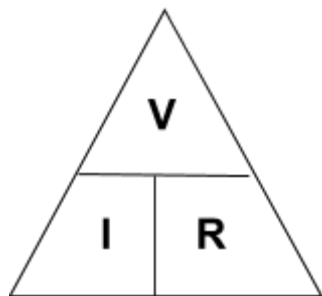
Electric Power (watts) = current (amps A) X voltage difference (volts)

**$P=IV$**



Current (amps A) = voltage difference (volts V) ÷ Resistance (ohms  $\Omega$ )

**$I=V/R$**



Conversions: Watts  $\square$  kW (divide by 1000-move decimal 3 places to the LEFT)