

## Practice Worksheet - Ohm's Law

Name: Key

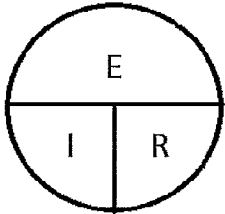
### Ohm's Law:

$$E=IR$$

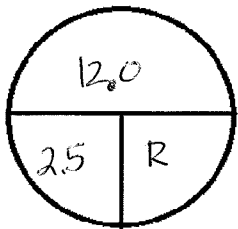
E = Electromotive Force or better known as **Voltage (V)**

I = Intensity or better known as **Current or Amperage (A)**

R = Resistance or better known as **Ohms of Resistance ( $\Omega$ )**



1. A current of 2.5A flows through a resistor when connected to a 12.0V battery. What is the resistance of a resistor?



$$E = 12.0 \text{ V}$$

$$I = 2.5 \text{ A}$$

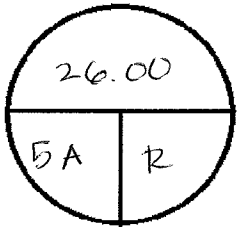
$$R = ?$$

$$R = \frac{E}{I}$$

$$R = \frac{12.0 \text{ V}}{2.5 \text{ A}}$$

$$R = 4.8 \Omega$$

2. A lamp is designed to draw a current of 5A in a 26.00V circuit. What is the resistance of the lamp?



$$E = 26.00 \text{ V}$$

$$I = 5 \text{ A}$$

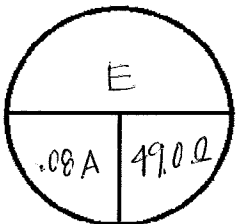
$$R = ?$$

$$R = \frac{E}{I}$$

$$R = \frac{26.00 \text{ V}}{5 \text{ A}}$$

$$R = 5.2 \Omega$$

3. What voltage is required if you want a current of 0.08A in a load having a resistance of 49.0 $\Omega$ ?



$$E = ?$$

$$I = .08 \text{ A}$$

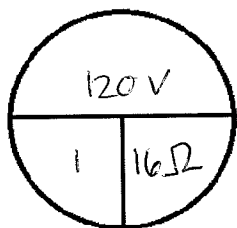
$$R = 49.0 \Omega$$

$$E = I \cdot R$$

$$E = 49.0 \Omega \cdot .08 \text{ A}$$

$$E = 3.92 \text{ V}$$

4. What current will flow through a toaster that has a resistance of  $16\ \Omega$  when it is connected to 120V?



$$E = 120V$$

$$I = ?$$

$$R = 16\ \Omega$$

$$I = \frac{120V}{16\ \Omega}$$

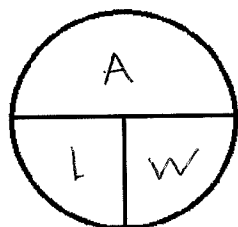
$$I = 7.5A$$

$$I = \frac{E}{R}$$

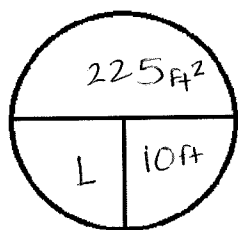
The formula for Area is Area (A) = Length (l) · Width (w)

$$A = l \cdot w$$

Use what you know about Ohms law and fill in the circle



5. A room has an area of  $225\text{ ft}^2$  and a width of 10 feet. What is the length of the room?



$$A = 225\text{ ft}^2$$

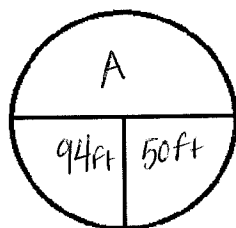
$$L = ?$$

$$w = 10\text{ ft}$$

$$L = 22.5\text{ ft}$$

6. A NBA basketball court is 94 feet by 50 feet. How many square feet of wood would you need to buy if you needed to replace the court?

BONUS- If 3 square feet of wood is \$8.99, how much would it cost to replace the entire floor?



$$A =$$

$$l = 94\text{ ft}$$

$$w = 50\text{ ft}$$

$$A = 4,700\text{ ft}^2$$

\* Bonus \*

$$\frac{4700\text{ ft}^2}{3\text{ ft}^2} \times \$8.99 = \$14,084.33$$