

# Ohm's Law Lab



# Current

- **Current** = The “flow” of electricity.
- **Units: Ampere A**

# TYPICAL CURRENTS

DEVICE	CURRENT (A)
Calculator	.0001
Spark Plug	.001
Clock Radio	.03
60-Watt Light Bulb	.5
Color TV	2
1200-Watt Hair Dryer	10

# Voltage

- The “driving force” or “pressure” behind the current.
- Units: **volts V**

# TYPICAL VOLTAGES

DEVICE	VOLTAGE (V)
Nerve Impulse	.1
Common battery	1.5
Car battery	12 to 14
Wall outlet (USA)	110 to 120
Wall outlet (Europe)	220
Power Generator	24,000
High-Voltage Line	345,000

# Voltage Sources



# Ohm's Law

- ***Ohm's Law*** states relationship of the potential difference to the current in a conductor.
- **$V = IR$**
- Unit: Ohm  $\Omega$

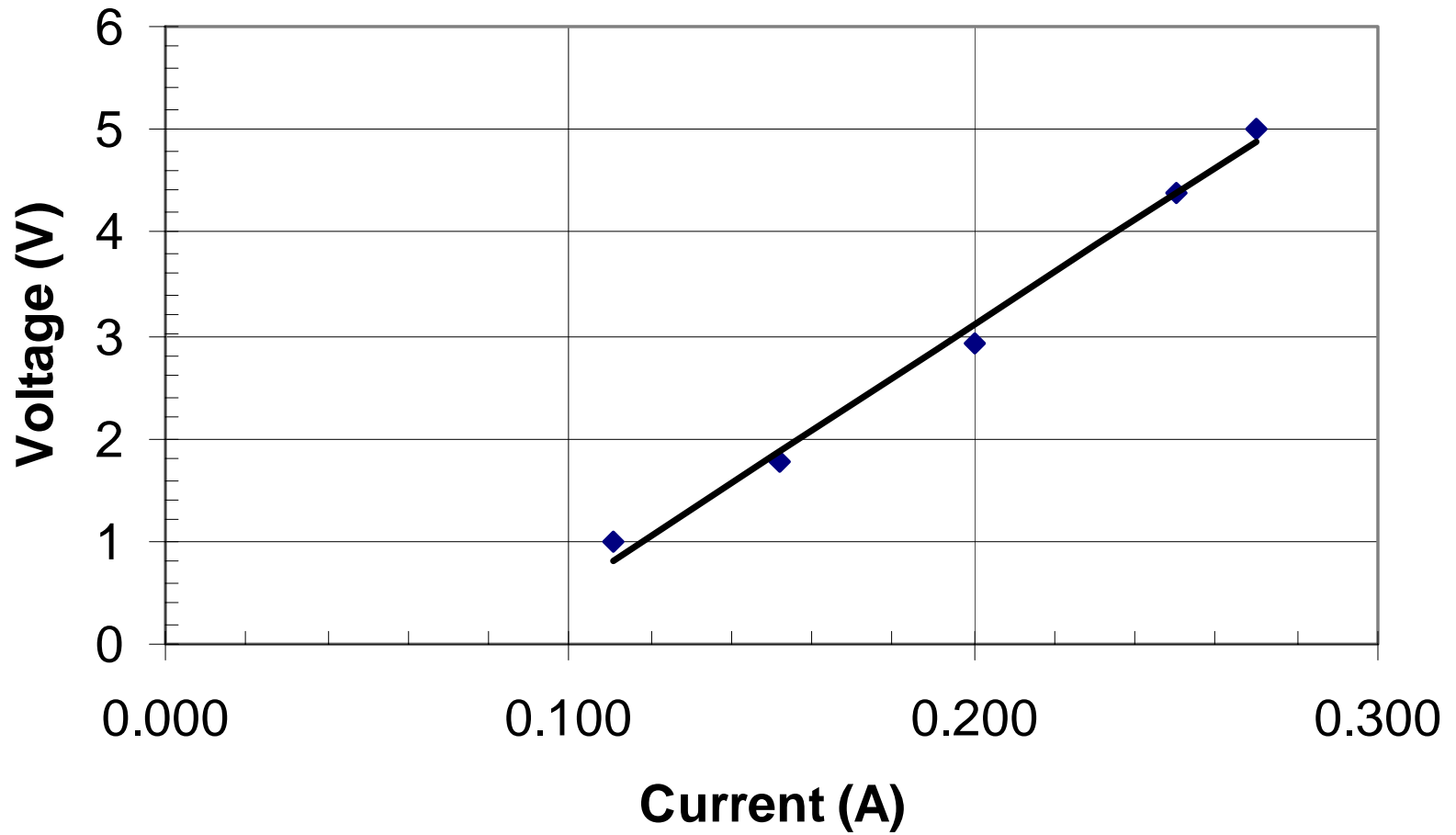
# Lab



- Measure current in bulb.
- Measure voltage supplied to circuit.
- Plot  $V$  vs.  $I$  using Excel
- Find resistance from the slope of the line.

# Light Bulb

$V = 25.61I$



## Resistance of a Light Bulb

$$V = 52.286I^2 + 5.552I - 0.2842$$

Correlation = 1

