**Data and calculations – part 1 NAME**

resistance of resistor from ohmmeter \_\_\_\_\_\_\_\_\_\_\_ ohms ***Use this value in ohms as the actual value of your resistance.***

voltage across the resistor current through the resistor calculated resistance using Ohm’s law: 

 3.0 volt \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_\_ A \_\_\_\_\_\_ ohms ***(Round the calculated resistance to the nearest ohm.)***

 4.0 volt \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_\_ A \_\_\_\_\_\_ ohms

 5.0 volt \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_\_ A \_\_\_\_\_\_ ohms

 6.0 volt \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_\_ A \_\_\_\_\_\_ ohms

 7.0 volt \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_\_ A \_\_\_\_\_\_ ohms

 8.0 volt \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_\_ A \_\_\_\_\_\_ ohms

 average \_\_\_\_\_\_ ohms ***🡨 Use this value as the experimental value.***

On the grid below sketch the graph of voltage in volts vs current in amps:

8

7

6

5

voltage

4

 in V

3

2

1

0

current in A

X 10-3

0 10 20 30 40 50 60

**Error analysis**

experimental value of resistance (calculated average) \_\_\_\_\_\_

actual value of resistance (from ohmmeter) \_\_\_\_\_\_

absolute error = experimental value – actual value \_\_\_\_\_\_

percent error = (absolute error/actual value) X 100% \_\_\_\_\_\_

 **Data and calculations – part 2**

The power supply should be adjusted to produce a voltage of 5.0 volts across the resistor. ***This is the actual voltage.***

 resistance of resistor current through resistor calculated voltage using Ohm’s law: 

\_\_\_\_\_\_ ohms \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_ A \_\_\_\_\_\_ V ***(Round the calculated voltage to one decimal place.)***

\_\_\_\_\_\_ ohms \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_ A \_\_\_\_\_\_ V

\_\_\_\_\_\_ ohms \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_ A \_\_\_\_\_\_ V

\_\_\_\_\_\_ ohms \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_ A \_\_\_\_\_\_ V

\_\_\_\_\_\_ ohms \_\_\_\_\_\_ mA 🡪 \_\_\_\_\_\_ A \_\_\_\_\_\_ V

 average \_\_\_\_\_\_ V 🡨 ***Use this value as the experimental value.***

On the grid below, sketch the graph of current in A vs resistance in ohms.

0

20

40

60

80

0

100

200

300

400

500

current

in A

X 10-3

resistance in ohms

**Error analysis**

experimental value of voltage \_\_\_\_\_\_ (ave. calculated voltage)

actual value of voltage \_\_\_\_\_\_ (reading from voltmeter)

absolute error = experimental value – actual value \_\_\_\_\_\_

percent error = (absolute error/actual value) X 100% \_\_\_\_\_\_