Name: _____ Date of Lab: _____
Lab Partner: _____

I. Your direct resistor value: R_1:_____ Ω

Slope of your ΔV vs. I graph: _____ ± _____ Ω

Comment on comparison of these results:

II. Three resistors in series: R_1:_____ Ω R_2:_____ Ω R_3:_____ Ω

Use the Ohmmeter to determine resistance of the group directly: R_{series}:_____ Ω

Slope of your ΔV vs. I graph: _____ ± _____ Ω

Comment on comparison of these results:

III. Three resistors in parallel: R_1:_____ Ω R_2:_____ Ω R_3:_____ Ω

Use the Ohmmeter to determine resistance of the group directly: $R_{parallel}$:_____ Ω

Slope of your ΔV vs. I graph: _____ ± _____ Ω

Comment on comparison of these results:

IV. Use last week's ("DC Circuits") results to compute resistances:

Series circuit:

			computed
Resistor R_1: _____ Ω	V_{BC}: _____ V	I_{AB}: _____ mA	R_1: _____ Ω
Resistor R_2: _____ Ω	V_{DE}: _____ V	I_{AB}: _____ mA	R_2: _____ Ω

Parallel circuit

I_{AB}: _____ mA then use $I_{BC} = I_{AB} - I_{BD}$ to find I_{BC} below.

			computed
Resistor R_1: _____ Ω	V_{BC}: _____ V	I_{BC}: _____ mA	R_1: _____ Ω
Resistor R_2: _____ Ω	V_{DE}: _____ V	I_{BD}: _____ mA	R_2: _____ Ω

V. Flashlight bulb: Direct resistance from ohmmeter: R_{bulb}:_____Ω

Find the cubic best-fit line with "linest". To find a cubic, first see page xiv of the lab manual for "quadratic" fits. Then, change two things: first, highlight 4 columns and 2 rows instead of 3 columns and 2 rows. Then, when typing the formula, use "{1,2,3}" instead of just "{1,2}". Your results will be in the form: $AI^3 + BI2 + CI + D$. Select all the cells, and display using scientific notation with at least 4 sig-figs.
The coefficient "C" should be comparable to the direct measurement you recorded above. If your current was in mA, then your resistance may be in kΩ instead of Ω.
In this table, the coefficients all have units, and they're all different from each other.

Your fit: $A =$ _____

$B =$ _____

$C =$ _____

$D =$ _____

VI. LED

Your direct resistor value: R_1:_____Ω

Maximum ΔV_{LED} for diode: ΔV_{LED}:_____V

Describe the voltage-current relationship for the LED when $\Delta V_{LED} > 0$.

Describe the voltage-current relationship for the LED when $\Delta V_{LED} < 0$.

What issues can arise when you try to use an ohmmeter to determine whether a device is "ohmic"?

VII. Spreadsheet

You must submit your Excel spreadsheet with all the above calculations using CANVAS. You should have properly formatted plots for all sections above (except IV). See pages xii and xiii of the lab manual for a refresher on plotting.