

Name: _____

Date: _____

Partner: _____

Use a pencil. You will not be given another copy of this sheet.

1. Attach your plot of ΔV vs. I for the resistor.
Write your linest results here \rightarrow
What is the resistance according to the plot?

Resistor: Linest results with units

$$R_{\text{from plot}} = (\quad \pm \quad) \Omega$$

What is the resistance measured directly from the ohmmeter?

$$R_{\text{from ohmmeter}} = \underline{\hspace{2cm}}$$

2. Attach your plot of ΔV vs. I for the light bulb.
Write the most reasonable "trendline" fit for this plot here; it is not a straight line:

$$\Delta V_{\text{best fit}} = \underline{\hspace{10cm}}$$

According to this equation, what is the resistance of this device when $I = 0$?

$$R_{\text{from plot}} = \underline{\hspace{2cm}}$$

What is the resistance from the ohmmeter? $R_{\text{from ohmmeter}} = \underline{\hspace{2cm}}$

3. For diodes, it is customary to plot I vs ΔV , instead of the other way around.
Attach your complete plot of I vs. ΔV for the LED. Then make two more plots from this data. Each is a straight line using a different half of the data.
For each portion, write the appropriate formatted results from linest here:

$$I_{\text{over 3 mA}} = (\quad \pm \quad) \Delta V + (\quad \pm \quad)$$

$$I_{\text{under 3 mA}} = \underline{\hspace{4cm}} \text{ [hint: this is enough space for your answer]}$$

According to the first equation, what is the voltage when $I = 0$?

$$V_{\text{diode: } I=0} = (\quad \pm \quad)$$

According to the second equation, what is the resistance when $V = 0$?

$$R_{\text{from plot}} = \underline{\hspace{2cm}}$$

What is the resistance from the ohmmeter? $R_{\text{from ohmmeter}} = \underline{\hspace{2cm}}$

4. Attach your answers to the questions on page 45.