Name: _____ Section: _____

Data and Calculations

Liquid Unknown # _____

Measurement #	Volume (mL)	Mass (g) of beaker + cover + liquid
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____

Post-lab Questions

1. Using your hand-written graph, determine the density of your unknown (recall that slope = $\Delta y / \Delta x$). When graphing, use all the data points, then draw the best fit straight line. Start at zero for the x axis, and about 10 to 20 grams less than you smallest mass for the y axis. The line may not exactly touch each point. Determine the slope using two points on the best fit line spread apart from each other. Do not use just two data points measured in the experiment as they may not be on the best fit line.

2. Using your hand-written graph, estimate:

   A. the mass (in grams) of 27.0 mL of your liquid. _____

   B. what volume (in mL) would 17.0 g of your liquid occupy. _____

3. Using your Excel® plot and constructed trendline, write the slope-intercept equation for your liquid unknown. What is the density of your unknown? Make sure to include the appropriate units. How does this density value compare to your result from question #1 above?

Name: _____ Section: _____

4. Using your slope-intercept equation, determine:

   A. the mass (in grams) of 27.0 mL of your liquid.

   B. what volume (in mL) would 17.0 g of your liquid occupy.

5. The data for temperature and pressure of a certain sample of gas is found to be:

Temperature (°C)	**Pressure (mmHg)**
–196	215
–78.5	542
–17.8	711
0.1	761
22.7	824
99.3	1037
189	1287

   The researcher seals the gas inside of a container, adjusts the temperature of the container, and then measures the pressure of the gas inside. Therefore, temperature is the independent variable and pressure is the dependent variable.

   A. Construct an Excel® graph of this data with a linear trendline. Make sure to print out a copy of this graph with the slope-intercept equation of the trendline displayed for inclusion with this report. Rewrite the equation, below, using T and P instead of x and y to show the relationship between temperature (T) and pressure (P):

   B. Use the equation of the line to calculate the expected pressure of the gas at a temperature of 42.3 °C.

   C. Use the equation of the line to predict the temperature of the gas when its pressure is 437 mmHg.

Name: _____ Section: _____