## DETERMINATION OF ABSOLUTE ZERO

Date: $\qquad$ Name: $\qquad$ Partner:

Objective: To determine_Absolute Zero

Procedure: As in CHEM 1105 lab manual, pages $\qquad$ .

Observations:

## Data:

Table 2: Height of Column of Air and Temperature

| Reading Number | Height of Column of Air <br> $(\mathbf{m m})$ | Water Temperature <br> $\left({ }^{\circ} \mathrm{C}\right)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |

## Calculations:

1) Attach a graph made in Graphical Analysis or Excel of Column Height (mm) versus Temperature $\left({ }^{\circ} \mathrm{C}\right)$.
2) The temperature that corresponds to absolute zero will be the one for which the column length is zero. Determine the slope and $y$-intercept of the line and using the equation $y=m x+b$ determine the value of Absolute Zero.
3) Show all your calculations for the slope and $y$-intercept when determining Absolute Zero.

## Conclusion:

Table 3: Absolute Zero Results

|  | Slope | Y-Intercept | Absolute Zero |
| :--- | :--- | :--- | :--- |
| Value determined |  |  |  |
| Units |  |  |  |

## Discussion:

Write a short paragraph discussing your results. Compare your experimental data to the accepted value, (-273.15 ${ }^{\circ} \mathrm{C}$.)

## Questions:

1. List three sources of error (not mistakes in technique) and the effect each would have on the calculated value for absolute zero. (e.g. not having a uniform bore in the capillary tube, etc.)
2. Calculate the \% error of your experimentally determined value of absolute zero and the accepted value.
