

Absolute Zero

Date: _____ Name: _____ Section: _____
Partner: _____

OBJECT: To determine the value of absolute zero.

PROCEDURE: As in Chemistry 1105 lab manual, p. _____

OBSERVATIONS:

DATA:

In the table below, record the temperature of the water and the length of the column in the capillary. Don't forget to record one decimal place for the temperature (in degrees Celsius) and one (if recording in mm) or 2 (if recording in cm) for the length. In any case, *indicate the units you are using for your measurements.*

Reading number	Water Temperature	Column length
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

GRAPH: Attach a clearly labeled graph with a descriptive title. The equation of the line must be shown on the graph.

CALCULATIONS:

In the space below, show your calculation for absolute zero.

Calculate the percent error between your value of absolute zero and the literature value.

CONCLUSION:

QUESTIONS:

Ideal Gas Constant

Date: _____ Name: _____ Section: _____
Partner: _____

OBJECT: To determine the ideal gas constant.

PROCEDURE: As in Chemistry 1105 lab manual, pp. _____

OBSERVATIONS:

DATA:

Mass of test tube and mixture before heating	
Mass of test tube and mixture after heating	
Mass of beaker and water <i>after</i> reaction	
Mass of beaker	
Temperature of water in the flask <i>after</i> reaction	
Vapour pressure of water at that temperature	
Atmospheric pressure	

CALCULATIONS:

Calculate:

1. The mass of O₂ produced
2. The moles of O₂ produced
3. The mass of water expelled

4. The volume of water expelled (assume a density of 1.00 g/mL)

5. The temperature of the solution (in Kelvin)

6. The pressure of the O₂ gas in atmospheres

7. The value of R, from $PV = nRT$

8. Calculate the % error between your calculated value of the Ideal Gas Constant and the literature value.

CONCLUSION:

QUESTIONS: