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Graded Assignment

Unit Test, Part 2

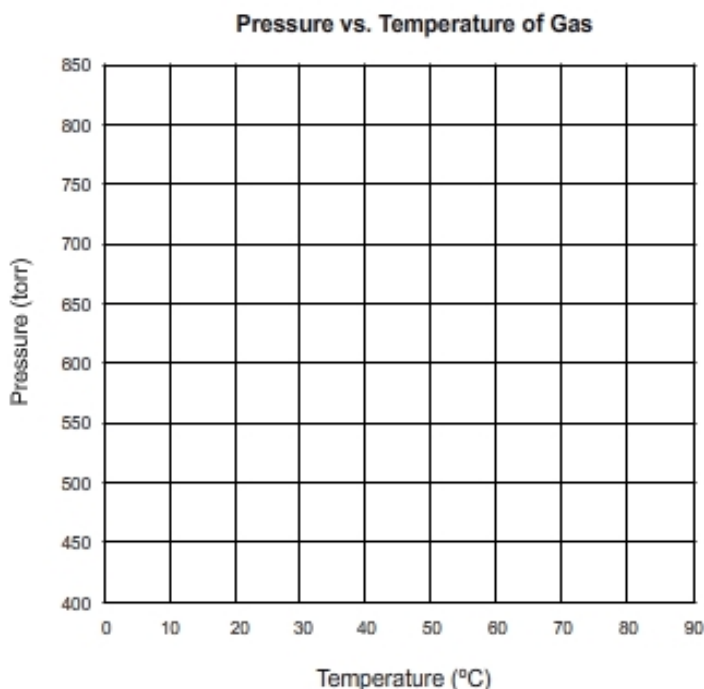
This chemistry test will be completed by answering the questions below. Once you have completed typing your answers into this document, please submit the file to the correct assignment folder in your course. The assignment needs to be submitted as a Word document and must be submitted by the due date. If needed, you may draw the graph by hand, take a picture of the graph, and incorporate into this Word file.

(10 points)

1. The table below shows the pressures of a gas when the temperature is changed. Plot the data on the graph below. Draw a **trend line** that goes through the data.

Pressure of Gas with Changes of Temperature

Temperature (°C)	Pressure (torr)
10	530
25	585
55	720
70	760
90	815



- **Calculate** the slope of the trend line (**show your work**). Make sure to include units for the slope.
- **Explain** how the variables of temperature and pressure are related.
- Use the trend line to determine what will be the gas pressure at 0°C?

(5 points)

2. You are completing a lab where you are to calculate the density of an irregularly shaped object. You measure the mass of the object as 3.1×10^4 kg. You then use water displacement to determine the volume and get a value of 1.9 m^3 . ***In performing the following calculations, all work must be shown for credit!***
 - Convert the mass of the object to g.
 - Convert the volume of the object to cm^3 .
 - Calculate the density of the object in units of g/cm^3 . Make sure to give your answer with the correct number of significant figures and put your answer in proper scientific notation.

(5 points)

3. Melissa has a new car and in checking the engine, she finds that the antifreeze level is low. Car antifreeze is a mixture of water and another substance, commonly methanol, ethylene glycol, or another low freezing-point liquid. The antifreeze she has contains methanol and needs to be mixed with water before being placed into the car. Melissa does some research and reads that a 50 : 50 mixture of methanol and water is not only best for keeping a car's radiator from freezing, but it will also take a higher temperature to make the car's radiator boil over.
 - Design an experiment to test the statement that a 50 : 50 mixture of methanol and water most effective for use in the radiator. Please write a hypothesis and clearly define your variables. Explain the procedure that you would use.