Dumas Method Data Sheet

Student Name:

Partner Name:

Date	Instructor's Initials	Grade

Elemental analysis (mass % composition)
66.63% Carbon, 11.18% Hydrogen, 22.19% Oxygen

Part One	
Mass of Container	60.172 g
Mass of Container + Condensed Sample	60.487 g
Mass of Condensed Sample	
Temperature of Water Bath	96.31 °C
Barometric Pressure	99.13 kPa

Part Two	
Mass of Empty Flask	58.191 g
Mass Flask + Water	193.144 g
Mass of Water	
Temperature of Water	24.0 °C
Density of Water	
Volume of Flask	
Show your work for calculating the volume of your flask.	

Using the data collected during the Dumas Experiment, calculate the formula mass of the unknown liquid. Show all your work.

Use the %mass values from the elemental analysis to calculate the empirical formula of your unknown liquid. Show all of your work.

Based on the formula mass and empirical formula, determine the true molecular formula of your unknown liquid. Calculate the true formula mass of the unknown liquid. Show all your work.

Calculate the percent error of your experimentally determined formula mass. How did you do? Describe at least three sources of error in your methodology. If you had the opportunity to do the experiment again, what modifications could you make to mitigate these errors?