Density of Coca-Cola vs. Diet Coke Lab

Using your student lab notebook fill in the information for the following section titles: Experiment Title, Purpose, Background, Hypothesis, Supplies, Procedure,Data, Analysis, and Conclusion. Student directions are in parentheses.
Record the date and the names of all participants in your group.

Purpose:
To measure and compare the density of Coca-Cola vs. Diet Coke using two methods: Slope method and literal equation method.

Background:
(Use the results and observations from the demonstration to explain why Diet Coke should have a lower density than Coke.)

Hypothesis:
(State which solution will have a lower density and explain why. Also state which calculation method will yield a more accurate reading for density and explain why.)

Supplies:
(2) 100 mL graduated cylinders
Diet Coke
Coca-Cola
Triple beam balance
(2) Pipettes or eye droppers
(2) 100 mL Beakers
Visa Vis marker

Procedure:

A. Slope Method
1.   Label the 100 mL beakers: Coca-Cola, Diet Coke.
2.   From the soda cans, pour approximately 60 mL of each soda into the labeled beakers.
3.   Place a graduated cylinder on the scale and record the mass in the Data section.
4. Using the pipette, add approximately 5mL of the Coca-Cola to the 100 mL cylinder.
5. Record the precise volume and the mass.
6. Repeat steps 4 and 5 nine more times.
7. Repeat the process for the Diet Coke, but use clean apparati.
8. Graph results and determine the slope.

B. Literal Equation Method

1.   Record the volume of the Coca-Cola can in the Data section. (Volume is printed on the can.)
2.   Measure the mass of the full can of Coca-Cola, and record results.
3.   Measure the mass of the empty can, and record results.
4.   Repeat the process for Diet Coke.
5.   In the Analysis section, compute the densities for each. Remember to subtract the mass of the can in each calculation. Show your literal equation.

<u>Data</u>

A. Slope Method

Mass of the graduated cylinder: _____

(*Remember to subtract the mass of the cylinder when recording the masses if the sodas.)

Volume of Coke (mL)	Mass of Coke (g)	Volume of Diet Coke (mL)	Mass of Diet Coke (g)

B. Literal Equation Method

Mass of full can (g) Coca-Cola	Mass of empty can (g) Coca-Cola	Volume of (mL) Coca-Cola

Mass of full can (g) Diet Coke	Mass of empty can (g) Diet Coke	Volume of (mL) Diet Coke

<u>Analysis</u>

(Construct a graph on a separate sheet of graphing paper. Be sure to use different colors for each soda and include a key. Place the mass of the soda along the y axis and the volume data along the x axis. Cut and paste the graph into your lab notebook under the Analysis section. **Be sure to show all work for both methods**.)

<u>Conclusion</u>

(Explain your findings and state whether your hypotheses where proven or disproven and explain why or why not. Compare your findings to the density of water at 22°C and 1 atm.)