Methods/Procedure:

1. Make a dilution of the 2% solution in 5 test tubes as follows:
   - 10 mL of the 2% - 2%
   - 8mL of the 2% and 2mL Distilled water - 1.6%
   - 6mL of the 2% and 4mL Distilled water - 1.2%
   - 4mL of the 2% and 6mL Distilled water - 0.8%
   - 2mL of the 2% and 8mL Distilled water - 0.4%

2. In the 6th test tube add 10 ml of the unknown solution

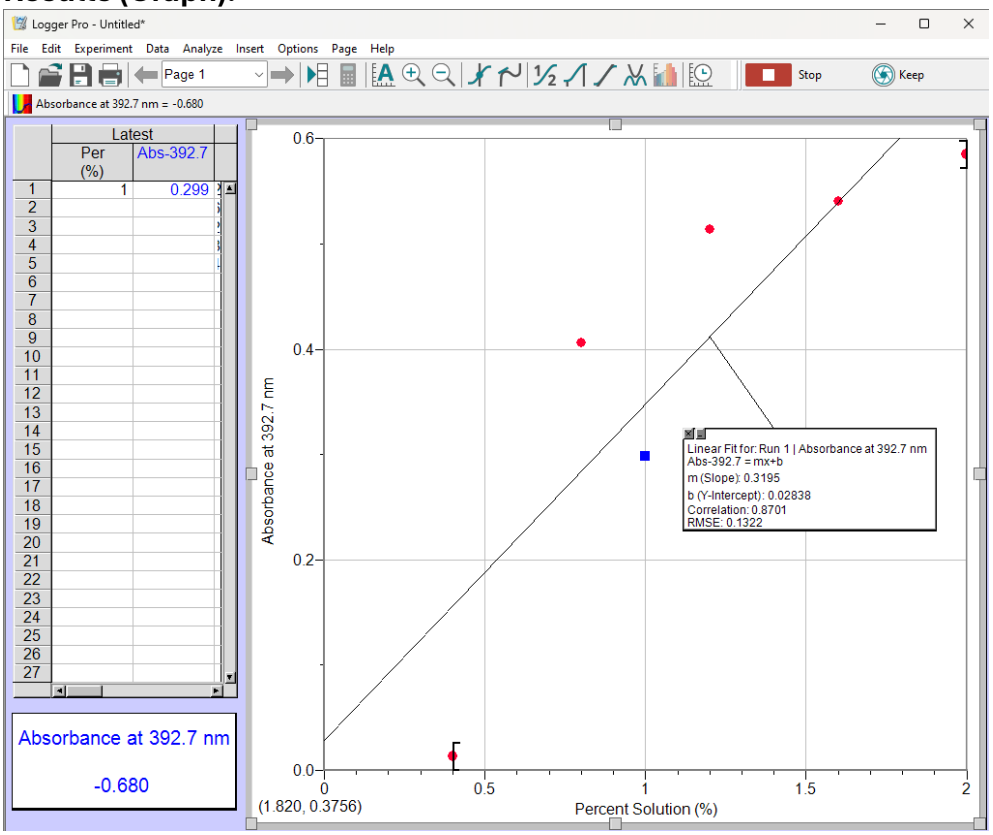
3. Add 1 ml of benedicts solution to each test tube and boil them for 3 minutes

4. After resting for 5 minutes, calibrate the spectrometer with a solution of 1ml distilled water and 1 ml benedicts.

5. Measure the absorbance of each of the known concentrations and make a trendline, giving you the m and b values.

6. Measure the absorbance of the unknown concentration and using its y-value and the m and b values from before to solve for its x, the percent solution.

Results (Graph):



Conclusion:

1. Summarize data (remember to use specific numbers from your results)

We created 5 test tubes with different dilutions; 2%, 1.6%, 1.2%, 0.8%, and 0.4% which we used to create a trendline on our absorbance vs percent solution graph giving us a slope of 0.3195 and y-intercept of 0.02838. After measuring the absorbance of the unknown concentration, the percent solution of it could be calculated using the equation y=mx+b and solving for x which resulted in approximately a 0.85% solution.

2. State the hypothesis. (4 parts)

We were trying to find the percent solution of an unknown concentration after making dilutions of a known concentration to compare it against. We expected to find the percent solution of the unknown concentration because we could make a reference chart with a trendline linear equation that could be used to calculate an unknown concentration from the measured absorbance. We chose to do it this way because the dilutions would give us a spread of the data from which we could make our trendline and linear equation and all we would need is the unknown and a sample of known concentration.

3. Does your data support or not support your hypothesis? Why or why not?

Our data does support our hypothesis because we were able to come up with a definite number for the percent solution of the unknown concentration. The result seems reasonable as well which also supports our hypothesis of being able to find the percent solution

4. Draw inferences

We infer that we can replicate this process and apply it to other similar experiments like the one we did. Using a known concentration and a spectrometer we can find the percent solution of any unknown concentration.

5. Identify things that went well and things that went bad with your experiment

Things that went well were that the result seems reasonable, the procedure we took seems like the simplest way to find the unknown concentration, and we didn't use up too much of the resources we had. Things that went bad were we had one outlier in our graph from measuring our prepared dilutions

6. How would you change your experiment to make it better?

We need to be a little more careful and precise when preparing our dilutions to make sure we don't end up with an outlier. We could also change the experiment by taking note of the colors produced by the benedict solution which could help indicate an approximate concentration when compared to our dilutions.