Density Dry Lab

Three students added different volumes of a liquid to a container. Each student used a different liquid (honey, rubbing alcohol, or cooking oil). They then measured the mass of the liquid. They all did this in the same room with the air conditioner turned on. Their results are below:

Volume (mL)	Mass of Honey (g)	Mass of Rubbing Alcohol (g)	Mass of Cooking Oil (g)
10	9.9	8.5	5.4
20	24.0	12.7	20.1
30	40.0	19.8	23.6
40	54.3	35.0	32.5
50	74.8	34.6	50.8
60	81.6	46.9	51.7

1. Identify each of the following (there may be more than one).

Independent Variables	Dependent Variables	Control Variables

2. Your instructor will tell you which set of data to graph. Write it here: _____

3. (graph)

4. What is the equation of the best-fit line?

5. What is the physical meaning of the slope of your graph?

6. The expected values of the densities of each of these substances are as follows: 1.42 g/mL for honey, 0.79 g/mL for alcohol, and 0.92 g/mL for oil. Calculate the percent error of your measured density (that is, slope). Make sure to show your work.

$$\% \text{ error} = \frac{|\text{measured} - \text{expected}|}{\text{expected}} \times 100$$

7. Are your data accurate? Explain.

8. Are your data precise? Explain.