

Name: _____

Date: _____

Lab # 2

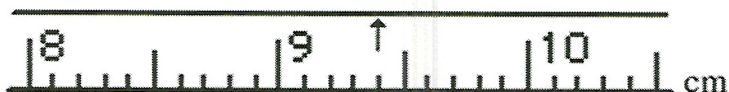
Measurement Precision

Minutes: ____

Aim: To be able to properly read and record measurements to precision appropriate to equipment being used.

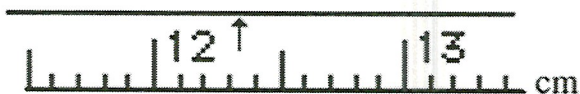
PreLab (8 points):

Estimate the measurements. How many significant figures are in each value?



Value: _____

#sig figs: _____



Value: _____

#sig figs: _____

Vocabulary (4 points):

Precision:

Accuracy:

Method:

- 1) Lab groups move to starting station. Read the directions and take the measurement according to the directions at the station. Record the measurement with the correct units in the data table row corresponding to that station.
Each student in the lab group must independently read and record his/her measurement of the sample at the station.
- 2) When directed, lab groups rotate to next station and repeat step 1, until all six stations have been visited.
- 3) When all stations are complete, compare your data with that of the others in your lab group in order to answer the analysis questions.

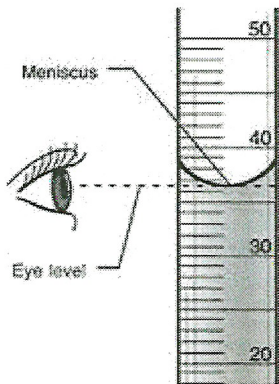
Data: (24 points)

Station #	Property being measured, <i>e.g., mass, volume</i>	Measuring tool	Measurement (with unit)
1			
2			
3			
4			
5			
6			

Analysis (14 points):

1. On volume, which tool gave you the most precision? Why?
2. Which station(s) required no approximation on the last significant figure? Why?
3. Were all measurements from all group members the same? Why or why not?
4. Why do you think it is important that during a laboratory procedure, the same person takes the measurements?

Base your answers to the following three questions on the diagram of the graduated cylinder below.



5) 36.0mL Explain why this is or is not correct:

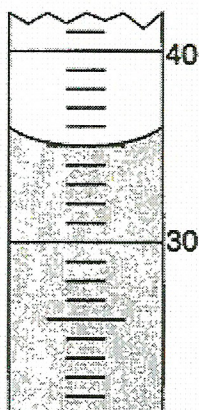
6) 36.5mL Explain why this is or is not correct:

7) 36mL Explain why this is or is not correct:

Questions: (15 points)

Lab Quiz: (35 points)

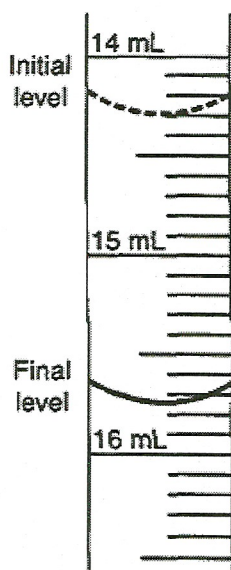
1. The diagram below represents a portion of a 100-milliliter graduated cylinder.



What is the reading of the meniscus?

- A) 35.0 mL B) 36.0 mL C) 44.0 mL D) 45.0 mL

2. The diagram below represents a section of a buret containing acid used in an acid-base titration.



What is the total volume of acid that was used?

- A) 1.10 mL B) 1.30 mL C) 1.40 mL D) 1.45 mL

3. During a laboratory experiment, a sample of aluminum is found to have a mass of 12.50 grams and a volume of 4.6 milliliters.

What is the density of this sample, expressed to the correct number of significant figures?

- A) 2.717 g/mL B) 2.72 g/mL C) 3 g/mL D) 2.7 g/mL

More Questions on back.

Questions

4. The measurement 0.41016 gram, rounded to four significant figures, is expressed as

- A) 0.410 g B) 0.41016 g C) 0.4102 g D) 0.4101 g

5. A student collected the data shown below to determine experimentally the density of distilled water.

Mass of graduated cylinder + distilled H₂O sample163 g

Mass of empty graduated cylinder 141 g

Mass of distilled H₂O sample g

Volume of distilled H₂O sample 25.3 mL

Based on the experimental data collected, what is the density of the distilled water?

- A) 1.0 g/ml B) 0.253 g/ml C) 0.87 g/ml D) 1.15 g/ml
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