Name _____

Density Detectives: Working with Lab Data

In laboratory experiments, density is often determined by **measuring mass and volume** carefully and then calculating: $D = \frac{m}{V}$

Small **measurement errors** can affect results. Always record data carefully, use consistent units, and calculate density to the correct number of **significant figures**.

1. A student collects the following data for a metal sample:

Trial	Mass (g)	Volume (cm³)
1	56.8	7.1
2	56.5	7.0
3	57.0	7.2

a) Calculate the density for each trial. _____

b) Determine the average density. _____

2. A rectangular metal block has measured dimensions:
length = 4.00 cm, width = 2.50 cm, height = 1.20 cm, and mass = 90.0 g.

Find the density using the calculated volume. _____

3. A student measures the mass of a liquid-filled beaker:

Empty beaker: 125.0 g Beaker + liquid: 235.5 g
The liquid volume is 100.0 mL.

What is the density of the liquid? _____

4. Using the data below, which substance is likely aluminum (2.7 g/cm³)?

Sample	Mass (g)	Volume (cm³)
A	54	20
B	27	10
C	80	10

Identify the correct sample: _____

5 . A rock sample displaces 45.0 mL of water in a graduated cylinder and has a mass of 122.0 g. Find the density of the rock. _____

6. A student reports a density of **8.9 g/cm³**, but the accepted value is **8.96 g/cm³**. Find the **percent error**. _____

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