

Density

DATA AND CALCULATIONS:

Part A – Density of Water

	Trial #1	Trial #2
Final Mass of Cylinder + Water (g)	g	g
Mass of Empty Cylinder (g)	g	g
Mass of Water (g)	g	g
Volume of Water (mL)	mL	mL
Temperature of Water (°C)	°C	°C
Density (g/mL)	g/mL	g/mL

1. Calculate the **average density** of water from your data. _____ g/mL
(This is your "Experimental" Density.)
2. List the **true density** of water at measured temperature. _____ g/mL
(This is your "Actual" Density.)
3. Calculate the **Percent Error** in your measurement. _____ %

Part B – Density of Aluminum

[Reminder: 1 mL = 1cm³]

	Trial #1	Trial #2
Mass of Beaker + Al pellets (g)	g	g
Mass of Empty Beaker (g)	g	g
Mass of Aluminum Pellets (g)	g	g
Volume of Water + Pellets in Cylinder	mL	mL
Initial Volume of Water in Cylinder	mL	mL
Volume of Aluminum Pellets	cm ³	cm ³
Density of Aluminum Pellets	g/ cm ³	g/ cm ³

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(Part B Continued)

4. Calculate the **average density** of aluminum from your data. _____ g/cm³
(This is your "Experimental" Density.)
5. List the **true density** of aluminum at measured temperature. _____ g/cm³
(This is your "Actual" Density.)
6. Calculate the **Percent Error** in your measurement. _____ %

Part C – Thickness of Aluminum

	Measurement
Length of Aluminum Foil (cm)	cm
Width of Aluminum Foil (cm)	cm
Mass of Aluminum Foil (g)	g

7. Using your measurements during this lab (and your average density of aluminum), determine the **volume** of the aluminum foil (in cm³). (Show your work.)

_____ cm³

8. Calculate the **thickness** (in cm) of the aluminum foil. (Show your work.)

_____ cm

Follow-Up Questions:

9. Acetone has a density of 0.7899 g/mL at 25.0°C. Would a 50.0 % acetone-water solution have a density **greater than** or **less than** the density of pure water? Explain.

10. A nugget of gold (D = 19.3 g/cm) is placed in a graduated cylinder containing 25.3 mL of water. The volume after adding the gold is 29.8 mL. Calculate the **mass** of the gold nugget (in g). (Show your work.)

_____ g