

Density Worksheet

1. What is density? Give a definition, not an equation.
2. A copper penny has a mass of 3.1 g and a volume of 0.35 mL. What is the density of copper?
3. The density of silver is 10.5 g/mL. What is the volume of a solid silver bar that weighs 68 g?
4. A plastic ball has a volume of 19.7 cm³ and a mass of 15.8 g.
 - a. Calculate the density of this ball.
 - b. Would this ball sink or float in water (density = 1.00 g/mL)?
 - c. Would this ball sink or float in gasoline (density \approx 0.68 g/mL)?
5. A balloon is inflated with helium. The mass of this helium is 0.0374 kg and the volume is 2.2×10^9 mL.
 - a. What is the mass of helium in g?
 - b. What is the volume of helium in L?
 - c. What is the density of helium in g/L?

6. A piece of lead has a volume of 19.84 mL. The density of lead is 11.4 g/mL.
- What is the mass of this lead in g?

 - What is the mass of this lead in kg?
7. Circle the choice in each pair with highest density:
- Water or Oil
 - Air or Gold
 - Helium or Air
8. A student finds a piece of metal that she thinks is aluminum. In the lab, she fills a large graduated cylinder with 132.5 mL of water and adds the metal. The new volume inside the graduated cylinder is now 377.5 mL. The metal has a mass of 612 g.
- Determine the volume of the metal.

 - Calculate the density in g/mL.

 - Is the metal aluminum (density = 2.7 g/mL)? Explain.
9. What should Indiana Jones have done to safely steal the gold in “Raiders of the Lost Ark”?

Challenge problem

The gold idol in “Indiana Jones” has a volume of approximately 1.5 L. If the density of gold is 19.32 g/L, what is the mass of the solid gold idol in pounds? (1 lb = 454 g)