

NAME: _____

DATE: _____ PERIOD: _____

Density Worksheet 1

Directions: Answer the questions and solve the problems. Show your work for each problem and circle your answer. Do not forget to include your units on your answer!

Formula	How to find <u>DENSITY</u> :
$\text{density} = \frac{\text{mass}}{\text{volume}}$	<ol style="list-style-type: none">1. Measure the VOLUME and MASS of the sample.2. Calculate the sample's DENSITY with the formula.

Questions:

1. What is the density of water? _____
2. In an oil spill, the oil seems to float on top of the water. Does oil or water have the lower density? _____
3. In an oil spill, is the danger greater to birds and marine mammals than it is to fish and other organisms that live on the ocean bottom? Why? _____

4. How is the density of oil an advantage in the cleanup? _____

5. Corn syrup sinks when poured in water. Does water or corn syrup have the higher density? _____
6. Why would an oil spill be an even greater disaster if the density of oil were the same as that of corn syrup? _____

Problems:

1. A block of aluminum has a volume of 15.0 mL and a mass of 40.5 g. What is its density?

$$\text{density} = \frac{\text{mass}}{\text{volume}} = \frac{40.5 \text{ g}}{15.0 \text{ mL}} = 40.5 \text{ g} \div 15.0 \text{ mL} = \underline{2.70 \text{ g/mL}}$$

2. Mercury metal is poured into a graduated cylinder that holds exactly 22.5 mL. The mercury used to fill the cylinder is 306.0 g. What is the density of mercury?

3. Calculate the density of sulfuric acid if 35.4 mL of the acid is 65.14 g.

4. A rectangular block of copper metal weighs 1896 g. The dimensions of the block are 8.4 cm by 5.5 cm by 4.6 cm. From this data, what is the density of copper? (Hint: Find the volume of the block.)

5. A block of lead has dimensions of 4.50 cm by 5.20 cm by 6.00 cm. The block weighs 1587 g. From this information, calculate the density of lead.

6. 28.5 g of iron shot is added to a graduated cylinder containing 45.50 mL of water. The water level rises to the 49.10 mL mark, From this information, calculate the density of iron.

7. When a small rock was placed on a triple beam balance the 3 weights were at 100g, 20g and 5.5g. When the rock was placed in a graduated cylinder, the water rose from 30mL to 37mL. What is the density of the rock?

8. If 30.943 g of a liquid occupy a space of 35.0 ml, what is the density of the liquid in g/cm^3 ?

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Density Worksheet 2

Directions: Solve the problems. Show your work and circle your answer. Do not forget to include your units on your answer!

mass = density X vol.	mass volume = ----- density
How to find MASS: 1. Measure the sample's VOLUME. 2. Use a book to find the sample's DENSITY 3. Use the formula above to calculate the sample's MASS.	How to find VOLUME: 1. Measure the sample's MASS. 2. Use a book to find the sample's DENSITY 3. Use the formula above to calculate the sample's VOLUME.

Problems:

1. A certain plastic bracelet has density of 0.78g/cc and a volume of 4cc? Would this bracelet float or sink in water? _____

2. If the density of a diamond is 3.5g/cc, what would be the density of a diamond whose volume is 0.5 cc?

3. Pure gold has a density of 19.32 g/cm³. How large would a piece of gold be if it had a mass of 318.97 g?

4. How many cm³ would a 55.932 g sample of copper occupy if it has a density of 8.92 g/cm³?

5. What is the mass of the alcohol that exactly fills a 200.0 mL container? The density of alcohol is 0.789 g/mL.

6. Find the mass of 250.0 mL of benzene. The density of benzene is 0.8765 g/mL.

7. What volume of silver metal will have a mass of exactly 2500.0 g. The density of silver is 10.5 g/cm³.

8. The density of lead is 11.342 g/cm³. What would be the volume of a 200.0 g sample of this metal?

9. The density of silver is 10.49 g/cm³. If a sample of pure silver has a volume of 12.993 cm³, what would be its mass?

10. How many grams of tin would occupy 5.5 L, if it has a density of 7.265 g/mL?

11. What is the mass of a 350 cm³ sample of pure silicon with a density of 2.336 g/cm³?

12. A student finds a rock on the way to school. In the laboratory he determines that the volume of the rock is 22.7 cm³, and the mass is 39.943 g. What is the density of the rock?

13. The common metal iron pyrite is often called fool's gold because it can be mistaken for gold. How could you distinguish the two?