

DENSITY

Instructions: Answer the following questions using the formula for density. You must show your work to receive full credit.

$$D=m/V$$

Density (D) is measured in g/cm³ or g/mL

Mass (m) is measured in grams (g)

Volume (V) is measured in either cm³ or mL

Example 1: What is the density of ice if a 10.0 cm³ sample has a mass of 9.17g?

$$D=m/V \quad D=(9.17\text{g})/(10.0\text{ cm}^3) \quad D=0.917\text{g/cm}^3$$

Example 2: What is the volume of a 15.0g sample of iron (D=7.86g/cm³)

$$V=m/D \quad D=(15.0\text{g})/(7.86\text{ g/cm}^3) \quad D=1.91\text{ cm}^3$$

1. What is the density of osmium if a 10.0 cm³ sample has a mass of 225.7g? _____
2. What is the density of CO₂ if a 100mL sample has a mass of 0.196g? _____
3. What is the density of a 27g block of wood if each side is 3.0cm? _____
4. What is the density of copper if a 5.0 cm³ sample has a mass of 44.8g? _____
5. What is the mass of a 10.0 cm³ sample of lead if the density is 11.3g/cm³? _____
6. What is the mass of 22.4 L of nitrogen if the density is 0.00125 g/cm³? _____
7. What is the volume of a 207g sample of lead if the density is 11.3g/cm³? _____
8. What is the volume of 14.0g of nitrogen if the density is 0.00125 g/cm³? _____
9. If silver has a density of 10.5g/cm³ and gold has a density of 19.3 g/cm³, which would have a greater mass: 5.0 cm³ of silver or 5.0 cm³ of gold? _____
10. If 5.0 mL of ethanol has a mass of 3.9 g, and 5.0 mL of benzene has a mass of 4.4g, which liquid is denser? _____