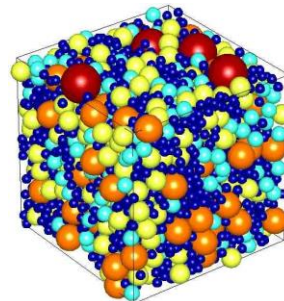# Density Practice Problems

The density of a substance is a measure of how much mass is packed into a certain volume of the substance. Substances with a high density, like steel, have molecules that are packed together tightly. Substances with a low density, like cork, have fewer molecules packed into the same amount of space.

The density of a substance can be found by dividing its mass by its volume. As long as a substance is homogeneous, the size or shape of the sample doesn't matter. The density will always be the same. This means that a steel paper clip has the same density as a steel girder used to build a bridge.

Density = Mass ÷ Volume $$D = \frac{m}{V}$$

Use the density formula to solve the following problems. Show all work and the answer must have the correct units. Remember that volume can have different forms. A block of ice with a volume of 3 cm^3 would be 3 mL of liquid after being melted.

1. What is the density of CO gas if 0.196 g occupies a volume of 100 ml?

Answer_____

2. A block of wood 3 cm on each side has a mass of 27 g. What is the density of the block? (Hint, don't forget to find the volume of the wood.)

Answer_____

3. An irregularly shaped stone was lowered into a graduated cylinder holding a volume of water equal to 2 ml. The height of the water rose to 7 ml. If the mass of the stone was 25 g, what was its density?

Answer_____

4. A 10.0 cm^3 sample of copper has a mass of 89.6 g. What is the density of copper?

Answer_____

5. Silver has a density of 10.5 grams/cm^3 and gold has a density of 19.3 g/cm^3. Which would have the greater mass, 5cm^3 of silver or 5cm^3 of gold?

Answer_____

6. Five mL of ethanol has a mass of 3.9 g, and 5.0 mL of benzene has a mass of 44 g. Which liquid is denser?

Answer_____

7. A sample of iron has the same dimensions of 2 cm x 3 cm x 2 cm. If the mass of this rectangular-shaped object is 94 g, what is the density of iron?

Answer_____