

Density Problems

1. A block of aluminum is found to have a mass of 54.61 g and a volume of 20.0 cm^3 . Calculate the density of the aluminum block.
2. The gas inside of a balloon is known to occupy a volume of $2.545 \times 10^3 \text{ mL}$. It is also known that the density of the balloon is $2.31 \times 10^{-4} \text{ g/cm}^3$. What is the mass of the air in the balloon?
3. A metal sample is known to have a density of 16.3 g/cm^3 . Once placed on the balance, it is found that the metal has a mass of 215.40 g. What is the volume of the metal?
4. A chemistry student wants to find the density of a certain rock. The rock is placed in an overflow container that empties water into a graduated cylinder. The initial volume of water in the graduated cylinder is 33.6 mL. Once the rock is placed into the container, the water level rises to 39.8 mL. The mass of the rock is found to be 101.00 g. What is the density of the rock?
5. The mass of a copper block is 5700 g. The length of the block is 12.633 cm and the width of the block is 4.225 cm. What is the height of the block if copper's density is 8.92 g/cm^3 ?
6. A wooden cube has a mass of 54.336 g and a density of 1.343 g/cm^3 . What is the length of each side of the cube?