

1. Density - volume displacement given final mass

Question:

A simple way to determine the density of a solid is to immerse the solid in a known quantity of water. When a piece of metal weighing 105 g is placed in a graduated cylinder containing 203 mL of water, the final volume of water read 243 mL.

Calculate the density (in g/mL) of the metal.

  g/mL

(Answer to 2 significant figures)

2. Density - volume displacement

A simple way to determine the density of a solid is to immerse the solid in a known quantity of water. A graduated cylinder containing 27.97 mL of water initially weighs 72.7 g. When an irregular shaped object is placed in the graduated cylinder, the final mass rises to 119 g and the volume of water rises to 35.27 mL.

Calculate the density (in g/mL) of the object.

  g/mL

(Answer to 2 significant figures)

3. Density - volume of object is (l)(w)(h)

The following measurements of a metal bar were made by a student.

- o length = 5.10 cm
- o width = 9.10 cm
- o height = 4.10 mm

The mass of the bar is 45 grams.

Calculate the density (g/cm^3) of the material.

  g/cm^3

(Answer to 2 significant figures)

4. Density - of a flask (filling with water) - given the density of water

A simple way to determine the volume of a flask is to weigh the flask when it is dry and weigh it again when it is filled with water.

The weight of the dry flask = 34.00 g

The weight of the filled flask = 115.4 g

Given that the density of water is 0.996 g/mL, calculate the volume of the flask in liters.

  liter

(Answer to 3 significant figures)

5. Density - thickness of a sheet of material

Nickel is a very soft metal that can be hammered into extremely thin sheets. If a 3.13 gram piece of Nickel is hammered into a uniform sheet whose area is 45.6 cm^2 , what is the thickness of the sheet in meter? Density of Nickel is 8.908 g/cm^3 .

- 7.71E-5 meter
- 0.160 meter
- 0.00611 meter
- 1.27E3 meter

6. Density - ball bearing

A steel ball-bearing with a circumference of 27.5 mm weighs 5.11 g. What is the density of the steel in g/cm^3 ?
Given,

- Volume of a sphere = $(4/3)(\pi)(r^3)$, where $\pi=3.14$.
- Circumference of a circle = $2 \pi r$

- $1.45\text{E}3 \text{ g/cm}^3$
- 14.5 g/cm^3
- 1.45 g/cm^3
- 0.145 g/cm^3