Calculating Density

The following formula is used to measure

Density:

Density=

or

D =

Where

D = \_\_\_\_\_\_\_\_\_\_\_\_ measured in (grams per centimeter cubed) g/cm3  or grams per millilitre (g/mL)

M = \_\_\_\_\_\_\_\_\_\_\_\_\_ measured in grams (g)

V = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ measured in milliliters (mL) or centimeters cubed (cm3)

The units g/mL and kg/L are usually used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The units g/cm3 and kg/m3 are usually used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The units can be compared directly because

* 1g/mL = 1 g/cm3
* 1kg/L = 1kg/m3

Example. What is the density of a 2cm3 sugar cube that has a mass of 3.2g?

* Step 1. Read the question carefully and identify what you are trying to find and what information is given
* Step 2. Identify the equation needed, and solve for the unknown variable
* Step 3. Write the final answer and be sure to include appropriate units

Example An object has a mass of 972g and a volume of 360cm3.

1. Find the density of the object. Show your work

b. Will the object float or sink in water? Explain

Example An object has a mass of 8g and a volume of 9.8mL.

1. Calculate the density of the object

b. Will the object float or sink in water

The density of any material is unique to that material. No other substance will have the exact same density.

The density of an unknown substance can be used to identify it

Example Mystery substance A has a mass of 1780g and a volume of 200cm3.

1. Find its density.

b. Determine the identity of the mystery substance (Use the table on pg 262 of your textbook to identify the substance)