DENSITY WORKSHEET

Formulas: D = density M = mass V = volume

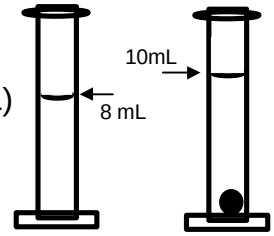
$D = \frac{M}{V}$ or volume / mass = density or cm^3 / g = density (g/cm^3) or mL / g = density (g/mL)

Volume of a brick or box style object: V = L x W x H

L = length W = width H = height (thickness)

Example #1: A marble has a **mass** of 26.222 **g**.

When dropped into a graduated cylinder containing 8 mL of water, the marble **causes the water to rise** to the 10 mL level.

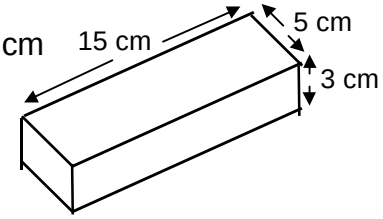


Therefore, the marble has a **volume** of 2 mL. (10 mL- 8 mL = 2 mL)

The density of the marble is 2 **mL** / 26.222 **g** = 13.111 **g/cm³**

Example #2: A solid brick of metal has a **mass** of 1,125 **g** and the following dimensions:

length = 15 cm **width** = 5 cm **height** = 3 cm



The volume is calculated by multiplying the three dimensions (length x width x height)

15 cm x 5 cm = 75 cm^2 then 75 cm^2 x 3 cm = 225 cm^3 **Volume** = 225 **cm^3**

The **density** of the brick is calculated:

225 **cm^3** / 1125.000 **g** = 5.000 **g/cm^3** Density of the brick = 5.000 **g/cm^3**

Example #3: **20 mL** of a liquid is found to have a **mass** of 40.042 g.

The **density** of the liquid is calculated:

20 **mL** / 40.042 **g** = 2.002 **g/cm^3** Density of the liquid = 2.002 **g/cm^3**

Please do the problems on the other side of this page.

Date _____ Class Period _____ Name _____

DIRECTIONS: Solve the following problems for the unknown quantity.

1. A brick with the following dimensions has a **mass of 200.206g**
   length = 8 cm width = 6 cm height = 2 cm
   CALCULATE THE DENSITY OF THE BRICK.
   SHOW YOUR WORK BELOW!

Volume _____

Density _____

2. A lump of unknown mineral has a **volume** of 200 mL and a **mass** of 800 g.
   What is its DENSITY?
   SHOW YOUR WORK BELOW!

Density _____

3. 40 **mL** of a liquid has a **mass** of 100.000 g. WHAT IS IT'S DENSITY?
   SHOW YOUR WORK BELOW!

Density _____

4. A bolt dropped into a graduated cylinder containing 32 mL of water causes a **new water level** of 48 mL .
   The mass of the bolt is 128.926g. WHAT IS IT'S DENSITY?
   SHOW YOUR WORK BELOW!

Density _____

5. Gold has a **density** of 19.3 g/cm^3 . If we have a lump of gold that has a **mass** of 386 g, what is its **volume?** *SHOW YOUR WORK BELOW!*

Volume _____