

Density Worksheet

Name _____ Date _____ Period _____

This worksheet is designed to give you practice with typical density problems. The questions will be based on data collected during investigations similar to those that you'll be doing in class.

Density is a property defined as the amount of matter (in grams) in a given volume of space (in cm^3). Some substances have low densities such as gases while solids have higher densities.

Picture an empty shoe box with the lid on. Even though it has a large volume, it doesn't have much mass since it's empty. Therefore it has a low density, or not much matter in its volume.

Now fill the same shoe box with sand. The box still has the same volume as before but it's now much heavier since the space inside the box is filled with sand. The density is now greater, meaning it has more matter (in this example, sand) in its volume than it had previously.

Use the triangle formula to the right to help in your calculations of density.

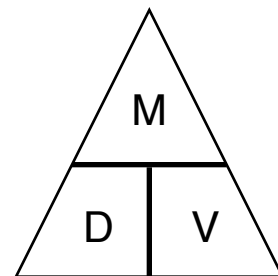
M represents the mass in grams of the substance.

V represents the volume in cm^3 ($1 \text{ cm}^3 = 1 \text{ ml}$) of the substance.

D represents the density in g/cm^3 of the substance.

Refer to previous handouts for determining volumes.

1. Two students are trying to determine the density of an unknown liquid. They measure the mass of an empty graduated cylinder as 27.25 g. They then pour in 16.5 ml of liquid. The mass of the liquid and the graduated cylinder is now 50.35 g. Show your work as you calculate the density of the liquid.



2. A student has a rectangular sample of a solid. Its dimensions are 2.1 cm x 3.5 cm x 5.0 cm. It also has a mass of 147.0 g. Calculate its volume then use that answer to determine its density. Show your work as you calculate the density of the solid.

3. Another student has to determine the density of a rock sample. They first determine the mass to be 81.0 g. Next they place it into a graduated cylinder containing 15.0 ml of water. The rock causes the water to rise to the 33.0 ml mark on the cylinder. Show your work as you calculate the density of the rock.