**Density as a Conversion Factor**

Density = mass = grams \*As a conversion factor, it converts **g to ml** or **ml to g**

Volume ml or cm3

*Show ALL work using dimensional analysis.*

1. If an unknown solid weighs 84.0 grams and occupies 30.0 cm3 of space, what is its density?

Density = mass = 84.0 grams = 2.80g/cm3

Volume 30.0 cm3

1. What is the mass (g), of a liquid having a density of 1.50 g/ml and a volume of 3.5 liters?

Density = mass = 1.50 grams = x x 1~~L~~ x=5300g/ml

Volume 1ml 3.5~~L~~ 1000ml

1. What is the volume(cm3) of a 200 gram sample of gold if its density is 20.5 g/cm3?

Density = mass = 20.5 grams = 200g x=10g/cm3

Volume 1 cm3.  x

1. A solid block of substance is 74.0 cm by 55.0 cm by 29.0 cm and it weighs 625 kg. Determine the density. Would it float in water? The density of water is 1 g/cm3 .

Volume = 74.0 cm x 55.0 cm x 29.0 cm= 118 030cm3

Density = mass = 625kg x 1000g = 5.30g/ cm3

Volume 118 030cm3 1kg

1. A gas has a volume of 7.0 liters and a mass of 444 grams. What is its density?

Density = mass = 444 grams = 63 g/L

Volume 7.0 liters

1. A certain liquid has a density of 0.855 g/mL. If the mass of a sample of the liquid 1.00 kg what is the volume in mL? (Don’t forget to convert kg to grams before solving!)

U=I X CF

ml = 1.00~~kg~~ x 103 ~~g~~ x 1ml = 1170 ml. or 1.17 x 103 ml

1~~kg~~ 0.855 ~~g~~