Homework

1) The density of alcohol is 600 kg / m^{-3}. Express it in g cm^{-3}.

Ans Density of alcohol is = 600 kg/m^{-3}

In g/cm^{-3} = $\frac{600}{1000}$ = 0.60 g/cm^{-3}

2) A piece of wood of mass 150 g has a volume of 200 cm^3. Find the density of wood in (a) C.G.S unit, (b) S.I. unit.

Ans a) Mass of wood = 150 g
Volume of wood = 200 cm^3
Density = m/v
D = 150/200
Density = 0.75 g / cm^3

b) In S.I system = 0.75 × 1000 = 750 kg/m^3

3) Calculate the density of solid from the following data:

a) Mass of solid (M) = 72 g
b) Initial volume of water in measuring cylinder = 24 ml

c) Find volume of water when solid is completely immersed in water 42 ml.

Ans Mass of solid (M) = 72 g
Initial volume of water V_1 = 24 ml
Final volume of water V_2 = 42 ml

Volume of solid (V) = $V_2 - V_1$
= 42 - 24
= 18 cm^3

Density of solid (D) = $\frac{M}{V}$

= $\frac{72}{18}$

= 4 g / cm^3

4) How does the density of a liquid (or gas) vary with temperature ?

Ans As the temperature increases, volume of most of the liquids also increases and when the volume increases density decreased. Similarly when temperature decreased, the volume of most liquids decreases which increase the density.