Noteset 1J – In Class Notes (Part 2)

Solving Density Equations

$D = \frac{m}{V}$ Base Equation

$V \cdot D = \frac{m}{V} \cdot V$ Mult. V by both sides

$m = D \cdot V$ solved for mass

Variables in all eqns. can be solved for any other variable

$\frac{m}{D} = \frac{D \cdot V}{D}$ divide D by both sides

$V = \frac{m}{D}$ solved for volume

Density Equation Set

$D = \frac{m}{V}$ $\quad m = D \cdot V$ $\quad V = \frac{m}{D}$

D = Density (g/mL) $\quad$ m = Mass (g) $\quad$ V = Volume (mL)

Sample Problems

Ex 1: $m = 152.6\text{g}$

$D = 1.20\text{ g/mL}$

Find Volume (mL)

$V = \frac{m}{D}$

$V = \frac{152.6\text{g}}{1.20\text{g/mL}}$

$V = 127.17\text{mL}$

Don't forget the unit!

Ex2 : $V = 12.8\,mL$

$D = 0.621\,g/mL$

Find mass (g)

$m = D \cdot V$

$m = 0.621\,g/mL \cdot 12.8\,mL$

$m = 7.95\,g$

Ex3

$m = 0.916\,g$

$V = 2.93\,mL$

Find density (g/mL)

$D = \frac{m}{V}$

$D = \frac{0.916\,g}{2.93\,mL}$

$D = 0.31\,g/mL$