Chem Tut 22 Sep

1 g Gold (Au) 1 g of H

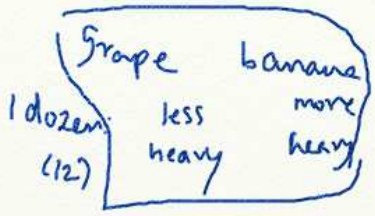
less atoms more atoms

197 g 1 g of Hydrogen

6.02×10^{23} atoms/mol

↑ Avagadros Constant

mole = atomic wt (in grams)



5 g of Au

= ? moles

1 mole ≡ 196.97 g

? ≡ 5 g

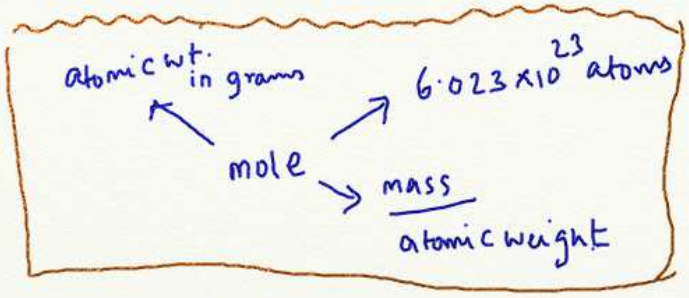
$\frac{5\ g \cdot mol}{196.97\ g}$

$196.97\ g \equiv 6.023 \times 10^{23}$ atoms

$5\ g \equiv \frac{5\ g \times 6.023 \times 10^{23}}{196.97\ g}$ atoms

= x atoms

$\frac{\text{mass (m)}}{\text{atomic wt. } M_w} = \text{moles (n)}$



1 mol of glucose: $C_6H_{12}O_6 \cdot H_2O$

$6 \times 12 + 12 + 6(16) + 18$

$72 + 12 + 96 + 18$

$= 198\ g$

0.5 (Moles / litre) → Molar

$C = \frac{n}{V}$

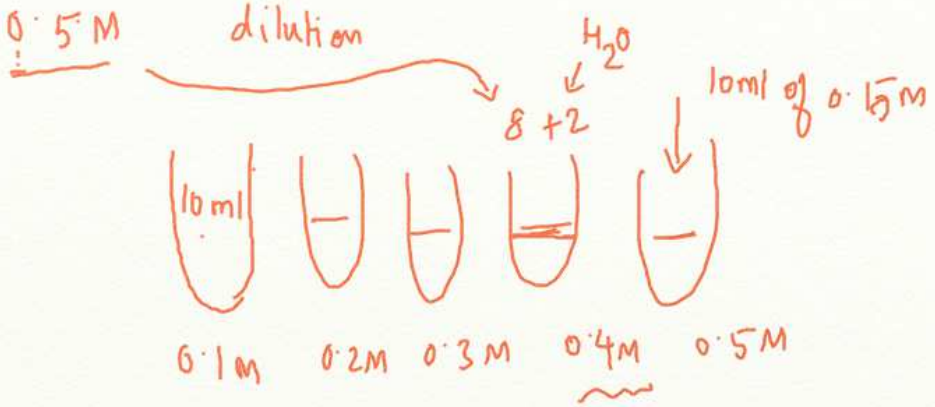
100ml of 0.5 M ↑ conc.

∴ I need mass of glucose.

0.5 mole	100 ml	198 g
1000 ml		1 mole

$= \frac{0.5 \times 198}{10} = 9.9\ g$

→ Picket-fence method



$C = \frac{n}{V}$ ✓ ✓ $\Rightarrow$ $C_1V_1 = C_2V_2$ = moles

$CV = n$

$0.4M\ (10ml) = (0.5M)\ V_2$

$V_2 = \frac{4}{0.5}\ ml = 8ml$