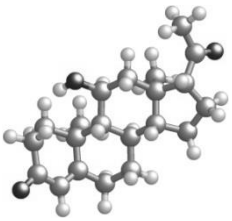

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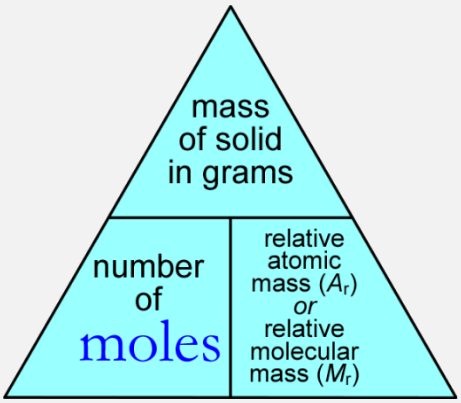
Class: ……

Date: …… **/** …… **/** ……

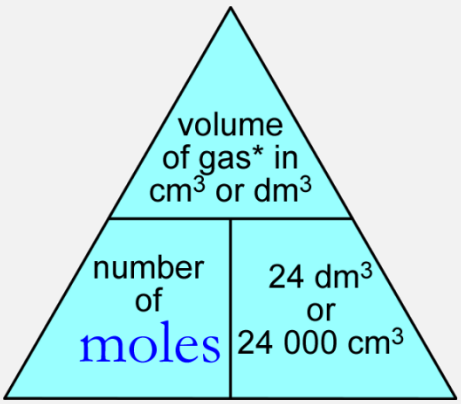
Summary of Formulae used for Mole Calculations



Mole Calculations for Solids

- moles = mass of solid in grams ÷ A_r or M_r
- mass of solid in grams = moles × A_r or M_r
- A_r or M_r = mass of solid in grams ÷ moles

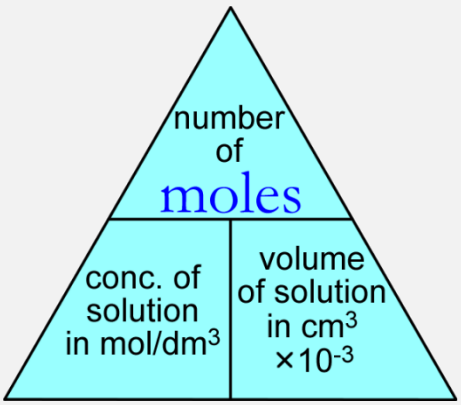
Note:
A_r = relative atomic mass.
M_r = relative molecular mass (for covalent compounds) or relative formula mass (for ionic compounds).



Mole Calculations for Gases

- moles = volume of gas* in dm^3 ÷ 24
- moles = volume of gas* in cm^3 ÷ 24 000
- volume of gas* in dm^3 = moles × 24
- volume of gas* in cm^3 = moles × 24 000

***Note:** Applies to the volume of a gas measured at room temperature and pressure (r.t.p.). For the volume (V) of a gas at another temperature (T) and pressure (P), convert using $(P_1 \times V_1) \div T_1 = (P_2 \times V_2) \div T_2$



Mole Calculations for Solutions

- moles = concentration × (volume × 10^{-3})
- concentration = moles ÷ (volume × 10^{-3})
- volume = moles ÷ (concentration × 10^{-3})

Note: The mole concentration of a solution (c) is measured in mol/dm^3. The volume of a solution (v) is measured in cm^3.
Note: mass concentration (g/dm^3)
= mass of solute (g) ÷ volume of solution (dm^3)
Note: mole conc. = mass conc. ÷ M_r of solute

- The mole is an SI unit that represents the amount of a substance. One mole of a substance contains 6 × 10^{23} particles of that substance. 6 × 10^{23} is *Avogadro's Constant*.

- number of particles = moles × (6 × 10^{23})
- moles = number of particles ÷ (6 × 10^{23})