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Mole concept and molar mass

Formulas and units, JEE Main. Status: Reviewed on 2026-11-20.

Result	Formula	Units or note
Moles from mass	n = m / M Valid when: pure substance; m in g and M in g per mol	mol = g / (g/mol)
Number of particles	N = n x N_A Valid when: N_A = 6.022 x 10^23 per mol; particles of one kind	N_A = 6.022 x 10^23 per mol
Atoms from molecules	atoms = k x molecules, k atoms per formula unit Valid when: k atoms of the element in each formula unit	dimensionless
Mass of one particle	m(one) = M / N_A Valid when: single particle of a pure substance; M in g per mol	g per particle
Average atomic mass	sum of (abundance fraction x isotopic mass) Valid when: abundances as fractions summing to 1; isotopic masses in u	u
Average molar mass of a mixture	M(avg) = total mass / total moles Valid when: non-reacting mixture of components	g/mol
Unified atomic mass unit	1 u = one twelfth of the mass of a carbon-12 atom	u (molar mass in g/mol has the same number)
Law of multiple proportions	masses of B combining with fixed mass of A are in a simple whole-number ratio Valid when: same two elements form more than one compound	ratio

Full lesson with worked examples:
https://www.engineeringrise.in/learn/learn/jee-main/chemistry/some-basic-concepts-of-chemistry/mole-concept-and-molar-mass

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