

CLASS 12

PHYSICS

FORMULAS HANDBOOK

Class 12 Physics Formulas Handbook (Chapter-wise)

Every key formula and result from the Class 12 Physics NCERT syllabus, organised by chapter, in one place. Cross-linked to our full Chapter-wise Solutions. More chapters will be appended here as their Solutions are published.

Contents

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Chapter 1: Electric Charges and Fields

Coulomb's law: $F = kq_1q_2/r^2$, $k=1/(4\pi\epsilon_0)\approx 9\times 10^9 \text{ N}\cdot\text{m}^2/\text{C}^2$

Electric field: $E = kq/r^2$

Dipole moment: $p = q\times 2a$; axial field $\approx 2kp/r^3$; equatorial field $\approx kp/r^3$

Torque on dipole: $\tau = pE \sin\theta$; potential energy $U = -pE \cos\theta$

Flux: $\phi = EA \cos\theta$

Gauss's law: $\phi = Q_{\text{enclosed}}/\epsilon_0$

Infinite line charge: $E = \lambda/(2\pi\epsilon_0 r)$

Infinite sheet: $E = \sigma/(2\epsilon_0)$; between opposite charged plates: $E = \sigma/\epsilon_0$

Charged spherical shell: outside $E=kQ/r^2$, inside $E=0$

See full [Chapter 1 Solutions](#)