

JEE Main Physics Formula Handbook

Quick-Reference Formula Sheet for Last-Minute Revision

Mechanics

- $v = u + at$, $s = ut + \frac{1}{2}at^2$, $v^2 = u^2 + 2as$
- $F = ma$, Momentum $p = mv$, Impulse $= F(\Delta t) = \Delta p$
- Work $W = F \cdot s \cos(\theta)$, Kinetic Energy $= \frac{1}{2}mv^2$, Power $P = W/t$
- Centripetal acceleration $a = v^2/r$, Torque $= r \times F$
- Universal Gravitation: $F = G \frac{m_1 m_2}{r^2}$

Electricity & Magnetism

- Coulomb's Law: $F = k \frac{q_1 q_2}{r^2}$ ($k = 9 \times 10^9 \text{ Nm}^2/\text{C}^2$)
- Ohm's Law: $V = IR$, Power $P = VI = I^2 R = V^2/R$
- Capacitance: $C = Q/V$, Energy stored $U = \frac{1}{2}CV^2$
- Magnetic Force: $F = qvB \sin(\theta)$, Force on wire $F = BIL \sin(\theta)$
- Faraday's Law: $\text{EMF} = -N \frac{d(\phi)}{dt}$

Optics & Modern Physics

- Mirror/Lens formula: $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$, Magnification $m = -v/u$
- Snell's Law: $n_1 \sin(\theta_1) = n_2 \sin(\theta_2)$
- Photoelectric Effect: $KE(\text{max}) = h\nu - (\text{work function})$
- de Broglie Wavelength: $\lambda = h/p$
- Radioactive Decay: $N = N_0 e^{(-\lambda t)}$

Thermodynamics & Waves

- First Law: $\Delta Q = \Delta U + \Delta W$
- Ideal Gas Law: $PV = nRT$
- Wave speed: $v = f \times \lambda$
- Doppler Effect (source moving): $f' = f \left(\frac{v}{v \pm v_s} \right)$

How to Use

Keep this sheet handy during revision weeks — not during the exam. Practising numerical problems using these formulas repeatedly is far more effective than memorising the sheet alone.

This document is an independent study aid prepared by freemock.in for JEE Main aspirants. It is not affiliated with, endorsed by, or sourced from the National Testing Agency (NTA). Always cross-check exam dates, syllabus, and pattern against the official NTA notification.

freemock.in - Free Mock Tests & Exam Prep Resources