

CAMBRIDGE IGCSE • 0625

IGCSE Physics Formula Sheet

Every equation the syllabus says to recall and use, Core and Extended.

1 Core: motion, forces, energy and pressure

The syllabus asks every candidate to recall and use these.

Speed	$v = \frac{s}{t}$
Average speed	average speed = $\frac{\text{total distance travelled}}{\text{total time taken}}$
Gravitational field strength	$g = \frac{W}{m}$
Density	$\rho = \frac{m}{V}$
Moment of a force	moment = force $\times$ perpendicular distance from the pivot
Work done	$W = Fd = \Delta E$
Power	$P = \frac{W}{t}$, $P = \frac{\Delta E}{t}$
Pressure	$p = \frac{F}{A}$
Kelvin and Celsius	$T \text{ (in K)} = \theta \text{ (in } ^\circ\text{C)} + 273$

2 Core: waves, electricity and magnetism

Also recall-and-use equations for all candidates.

Wave speed	$v = f\lambda$
Resistance	$R = \frac{V}{I}$
Electrical power	$P = IV$
Electrical energy	$E = IVt$
Transformer	$\frac{V_p}{V_s} = \frac{N_p}{N_s}$

3 Extended (Supplement) only

Extended candidates must also recall and use these.

Acceleration	$a = \frac{\Delta v}{\Delta t}$
Spring constant	$k = \frac{F}{x}$
Force, mass and acceleration	$F = ma$
Momentum	$p = mv$
Impulse	impulse = $F\Delta t = \Delta(mv)$
Resultant force	$F = \frac{\Delta p}{\Delta t}$
Kinetic energy	$E_k = \frac{1}{2}mv^2$
Gravitational potential energy	$\Delta E_p = mg\Delta h$
Efficiency	efficiency = $\frac{\text{useful energy output}}{\text{total energy input}} \times 100\%$
Pressure beneath a liquid	$\Delta p = \rho g\Delta h$
Gas at constant temperature	$pV = \text{constant}$
Specific heat capacity	$c = \frac{\Delta E}{m\Delta\theta}$
Refractive index	$n = \frac{\sin i}{\sin r}$, $n = \frac{1}{\sin c}$

Current	$I = \frac{Q}{t}$
e.m.f. and potential difference	$E = \frac{W}{Q}, V = \frac{W}{Q}$
Potential divider	$\frac{R_1}{R_2} = \frac{V_1}{V_2}$
Transformer, 100% efficiency	$I_p V_p = I_s V_s$
Power loss in cables	$P = I^2 R$
Average orbital speed	$v = \frac{2\pi r}{T}$
Hubble constant	$H_0 = \frac{v}{d}$

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