IGCSE Physics 0625 equation sheet

Exams in 2026, 2027 and 2028 · From the official Cambridge syllabus · Extended = Extended (Supplement) only

Motion, forces and momentum

Speed	$v = s \div t$
Average speed	total distance ÷ total time
Acceleration Extended	$a = \Delta v \div \Delta t$
Weight	$W = mg$ ($g \approx 9.8$ N/kg)
Density	$\rho = m \div V$
Spring constant Extended	$k = F \div x$
Force Extended	$F = ma$
Moment	moment = force × perpendicular distance from the pivot
Momentum Extended	$p = mv$
Impulse Extended	$\text{impulse} = F\Delta t = \Delta(mv)$
Resultant force Extended	$F = \Delta p \div \Delta t$

Energy, work and power

Work done	$W = Fd = \Delta E$
Power	$P = W \div t = \Delta E \div t$
Kinetic energy Extended	$E_k = \frac{1}{2}mv^2$
Change in gravitational potential energy Extended	$\Delta E_p = mg\Delta h$
Efficiency Extended	(useful energy output ÷ total energy input) × 100%
Efficiency (power) Extended	(useful power output ÷ total power input) × 100%

Pressure and thermal physics

Pressure	$p = F \div A$
Pressure in a liquid Extended	$\Delta p = \rho g \Delta h$
Gas at constant temperature Extended	$pV = \text{constant}$
Temperature in kelvin	$T\,(K) = \theta\,(°C) + 273$
Specific heat capacity Extended	$c = \Delta E \div (m\Delta\theta)$

Waves and light

Wave speed	$v = f\lambda$
Reflection	angle of incidence = angle of reflection
Refractive index Extended	$n = \sin i \div \sin r$
Critical angle Extended	$n = 1 \div \sin c$
Speed of electromagnetic waves in a vacuum Extended	3.0×10^8 m/s

Electricity and magnetism

Current Extended	$I = Q \div t$
Resistance	$R = V \div I$
Electrical power	$P = IV$
Electrical energy	$E = IVt$
e.m.f. and potential difference Extended	$E = W \div Q$, $V = W \div Q$
Resistors in series	$R = R_1 + R_2 + \ldots$
Two resistors in parallel Extended	$1 \div R = 1 \div R_1 + 1 \div R_2$
Potential divider Extended	$R_1 \div R_2 = V_1 \div V_2$
Power loss in cables Extended	$P = I^2R$
Transformer	$V_p \div V_s = N_p \div N_s$
Transformer, 100% efficient Extended	$I_pV_p = I_sV_s$

Space physics

Orbital speed Extended	$v = 2\pi r \div T$
Hubble constant Extended	$H_0 = v \div d$ ($\approx 2.2 \times 10^{-18}$ per second)
Age of the Universe (estimate) Extended	$d \div v = 1 \div H_0$

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