IGCSE Physics 0625 Equations List

Every equation you need to **recall and use** for Cambridge IGCSE Physics 0625. **Ext** = Extended (Supplement) only. Free from Your Science Online: yourscienceonline.com

Quantity	Equation	Units	Tier
Motion			
Speed	$v = s \div t$	m/s, m, s	Core
Acceleration	$a = \Delta v \div \Delta t$	m/s^2, m/s, s	Ext
Mass, weight and density			
Gravitational field strength	$g = W \div m$	N/kg, N, kg (g = 9.8 N/kg on Earth)	Core
Density	$\rho = m \div V$	kg/m^3 or g/cm^3	Core
Forces and momentum			
Resultant force	$F = m\,a$	N, kg, m/s^2	Ext
Moment	moment = F × d	N m, N, m (perpendicular distance)	Core
Spring constant	$k = F \div x$	N/m, N, m	Ext
Momentum	$p = m\,v$	kg m/s, kg, m/s	Core
Impulse	impulse = $F\Delta t = \Delta(mv)$	N s	Core
Force and momentum	$F = \Delta p \div \Delta t$	N, kg m/s, s	Ext
Energy, work and power			
Work done	$W = F\,d = \Delta E$	J, N, m	Core
Power	$P = W \div t = \Delta E \div t$	W, J, s	Core
Efficiency	(useful energy output ÷ total energy input) × 100%	no unit (%)	Ext
Kinetic energy	$E_k = ½\,m\,v^2$	J, kg, m/s	Ext
Change in gravitational potential energy	$\Delta E_p = m\,g\,\Delta h$	J, kg, N/kg, m	Ext
Pressure			
Pressure	$p = F \div A$	Pa (N/m^2), N, m^2	Core
Pressure in a liquid	$\Delta p = \rho\,g\,\Delta h$	Pa, kg/m^3, N/kg, m	Ext
Thermal physics			
Gas at constant temperature	$p\,V$ = constant ($p_1V_1 = p_2V_2$)	any matching units	Ext
Specific heat capacity	$\Delta E = m\,c\,\Delta\theta$	J, kg, J/(kg °C), °C	Ext
Waves and light			
Wave speed	$v = f\,\lambda$	m/s, Hz, m	Core
Refractive index	$n = \sin i \div \sin r$	no unit	Ext
Critical angle	$n = 1 \div \sin c$	no unit	Ext
Electricity			
Current	$I = Q \div t$	A, C, s	Ext
Resistance	$V = I\,R$	V, A, Ω	Core
Resistors in series	$R = R_1 + R_2$	Ω	Core
Electrical power	$P = I\,V$	W, A, V	Core

Quantity	Equation	Units	Tier
Electrical energy	$E = I\ V\ t$	J, A, V, s	Core
Resistors in parallel	$1/R = 1/R_1 + 1/R_2$	Ω	Ext
Potential difference and e.m.f.	$V = W \div Q$	V, J, C	Ext
Potential divider	$R_1 \div R_2 = V_1 \div V_2$	no unit (ratio)	Ext
Electromagnetism			
Transformer turns	$V_p \div V_s = N_p \div N_s$	V, turns	Core
Ideal transformer power	$I_p V_p = I_s V_s$	A, V	Ext
Power lost in cables	$P = I^2 R$	W, A, Ω	Ext
Space physics			
Orbital speed	$v = 2\pi r \div T$	m/s, m, s	Ext

Tip: write the equation, substitute with units, then give the answer with a unit. Practise with our free topic papers at yourscienceonline.com/igcse-physics-0625-past-papers/. Based on the Cambridge IGCSE Physics 0625 syllabus. This is not an official Cambridge document.