OXFORD
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AQA EXAMINATIONS

INTERNATIONAL GCSE

GCSE Physics

Physics Equations Sheet

Insert

9203 GCSE PHYSICS EQUATIONS SHEET

$v = \frac{s}{t}$	v velocity s displacement t time
$a = \frac{\Delta v}{t}$	a acceleration Δv change in velocity t time taken
$F = m \times a$	F force m mass a acceleration
$p = m \times v$	p momentum m mass v velocity
$F = \frac{\Delta p}{t}$	F force Δp change in momentum t time
$W = m \times g$	W weight m mass g gravitational field strength
$F = k \times e$	F force k spring constant e extension
$W = F \times d$	W work done F force d distance moved in the direction of the force
$P = \frac{W}{t}$	P power W work done t time
$P = \frac{E}{t}$	P power E energy transferred t time
$E_p = m \times g \times h$	E_p change in gravitational potential energy m mass g gravitational field strength (acceleration of free fall) h height
$E_k = \frac{1}{2} \times m \times v^2$	E_k kinetic energy m mass v velocity
$E_e = \frac{1}{2} \times k \times e^2$	E_e elastic potential energy k spring constant e extension
$M = F \times d$	M moment of the force F force d perpendicular distance from the line of action of the force to the pivot

$v = f \times \lambda$	v speed f frequency λ wavelength
$n = \frac{\sin i}{\sin r}$	n refractive index i angle of incidence r angle of refraction
$n = \frac{1}{\sin c}$	n refractive index c critical angle
$\text{magnification} = \frac{\text{image height}}{\text{object height}}$	
$E = m \times c \times \Delta\theta$	E energy m mass c specific heat capacity $\Delta\theta$ temperature change
$E = m \times L_V$	E energy m mass L_V specific latent heat of vaporisation
$E = m \times L_F$	E energy m mass L_F specific latent heat of fusion
$\text{efficiency} = \frac{\text{useful energy out}}{\text{total energy in}} (\times 100\%)$	
$\text{efficiency} = \frac{\text{useful power out}}{\text{total power in}} (\times 100\%)$	
$I = \frac{Q}{t}$	I current Q charge flow t time
$V = \frac{E}{Q}$	V potential difference E energy transferred Q charge
$V = I \times R$	V potential difference I current R resistance
$P = I \times V$	P power I current V potential difference
$E(\text{kW h}) = P(\text{kW}) \times t(\text{h})$	E energy transferred P power t time

$\frac{V_p}{V_s} = \frac{n_p}{n_s}$	V_p potential difference across the primary coil V_s potential difference across the secondary coil n_p number of turns on the primary coil n_s number of turns on the secondary coil
$V_p \times I_p = V_s \times I_s$	V_p potential difference across the primary coil I_p current in the primary coil V_s potential difference across the secondary coil I_s current in the secondary coil