OXFORD

INTERNATIONAL AQA EXAMINATIONS

# OXFORD AQA INTERNATIONAL GCSE

# GCSE Physics

Physics equation sheet

## Insert

# 9203 GCSE PHYSICS EQUATION SHEET

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

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

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