FLIPPED around PHYSICS

Physics Equations Revision

Complete the following table. The first row has been done for you. Check out the videos (right) if you need some help rearranging equations.

videos

formula	word equation with units	rearrange formula	
$W = mg$	$weight(N) = mass(kg) \times gravitational\ field\ strength\ (N/kg)$	$m = \frac{W}{g}$	$g = \frac{W}{m}$
$W = Fs$		$F =$	$s =$
$M = Fd$		$F =$	$d =$
$F = ke$		$k =$	$e =$
$p = \frac{F}{A}$		$F =$	$A =$
$s = vt$		$v =$	$t =$
$a = \frac{\Delta v}{t}$		$t =$	$\Delta v =$
$F = ma$		$m =$	$a =$
$*\ p = mv$		$m =$	$v =$
$E_k = \frac{1}{2}mv^2$		$m =$	$v =$
$E_p = mgh$		$m =$	$h =$
$P = \frac{E}{t}$		$E =$	$t =$
$P = \frac{W}{t}$		$W =$	$t =$
$eff = \frac{E_{output}}{E_{total}}$	$efficiency = \frac{useful\ energy\ (or\ power)\ output}{total\ energy\ (or\ power)\ input}$	$E_{output} =$	$E_{total} =$
$v = f\lambda$		$f =$	$\lambda =$
$Q = It$		$I =$	$t =$
$V = IR$		$I =$	$R =$
$P = IV$		$I =$	$V =$
$P = I^2R$		$I =$	$R =$
$E = Pt$		$P =$	$t =$
$E = QV$		$Q =$	$V =$
$\rho = \frac{m}{V}$		$m =$	$V =$

* higher tier

Crib sheet

Symbol	Quantity
W	$weight(N)$
m	$mass(kg)$
g	$gravitational\ field\ strength(N/kg)$
F	$force(N)$
k	$spring\ constant(N/m)$
s	$distance(m)$
v	$speed\ or\ velocity\ (m/s)$
a	$acceleration(m/s^2)$
t	$time(s)$
p	$momentum(kgm/s)$
E_k	$kinetic\ energy(J)$
E_p	$gravitational\ potential\ energy(J)$
h	$height(m)$
P	$power(W)$
E	$energy(J)$
W	$work\ done(J)$
f	$frequency(Hz)$
λ	$wavelength(m)$
Q	$charge(C)$
I	$current(A)$
V	$voltage\ or\ potential\ difference(V)$
R	$resistance(\Omega)$
ρ	$density(kg/m^3)$
V	$volume(m^3)$

Note: Some symbols are used for more than one quantity (e.g. W for weight and work done). The prefix Δ means "change of" (e.g. $\Delta v\ means\ change\ of\ velocity$).

unit symbol	unit name
N	$newton$
kg	$kilogram$
m	$metre$
s	$second$
J	$joule$
W	$watt$
Hz	$hertz$
C	$coulomb$
A	$ampere$
Ω	ohm
V	$volt$

Additional equations supplied in exam

formula	word equation	rearrange formula	
$* \ p = h\rho g$	$\text{pressure at depth in a fluid} = \text{depth} \times \text{density} \times \text{gravitational field strength}$	$\rho =$	$h =$
$v^2 - u^2 = 2as$	$\text{final velocity}^2 - \text{start velocity}^2 = 2 \times \text{acceleration} \times \text{distance}$	$a =$	$v =$
$* \ F = \frac{m\Delta v}{\Delta t}$	$\text{force} = \frac{\text{mass} \times \text{change of velocity}}{\text{change of time}}$	$\Delta v =$	$\Delta t =$
$E_e = \frac{1}{2}ke^2$	$\text{elastic potential energy} = \frac{1}{2} \times \text{spring constant} \times \text{extension}^2$	$k =$	$e =$
$\Delta E = mc\Delta\theta$	$\text{energy supplied} = \text{mass} \times \text{specific heat capacity} \times \text{change in temperature}$	$c =$	$\Delta\theta =$
$T = \frac{1}{f}$	$\text{period} = \frac{1}{\text{frequency}}$	$f =$	
$* \ F = BIl$	$\text{force} = \text{magnetic flux density} \times \text{current} \times \text{length of wire in field}$	$B =$	$l =$
$\Delta E = ml$	$\text{energy supplied} = \text{mass} \times \text{specific latent heat}$	$m =$	$l =$
$* \ \frac{V_p}{V_s} = \frac{n_p}{n_s}$	$\frac{\text{potential difference across primary}}{\text{potential difference across secondary}} = \frac{\text{number of turns on primary}}{\text{number of turns on secondary}}$	$V_p =$	$n_s =$
$* \ V_s I_s = V_p I_p$	$\text{potential difference across secondary} \times \text{current through secondary} = \text{potential difference across primary} \times \text{current through primary}$	$V_p =$	$I_s =$
$pV = constant$	$\text{pressure} \times \text{volume} = \text{constant}$	$p =$	$V =$

* higher tier