



**GCSE Physics (8463)**

**Physics Equations Sheet**

**[Turn over]**

1	<p><b>pressure due to a column of liquid</b>  <b>= height of column × density of liquid</b>  <b>× gravitational field strength (g)</b></p>	$p = h \rho g$
2	<p><b>(final velocity)<sup>2</sup> – (initial velocity)<sup>2</sup></b>  <b>= 2 × acceleration × distance</b></p>	$v^2 - u^2 = 2 a s$
3	<p><b>force = <math>\frac{\text{change in momentum}}{\text{time taken}}</math></b></p>	$F = \frac{m \Delta v}{\Delta t}$

4	<b>elastic potential energy</b> <b>= 0.5 × spring constant × (extension)<sup>2</sup></b>	$E_e = \frac{1}{2} k e^2$
5	<b>change in thermal energy</b> <b>= mass × specific heat capacity</b> <b>× temperature change</b>	$\Delta E = m c \Delta \theta$
6	<b>period = <math>\frac{1}{\text{frequency}}</math></b>	$T = \frac{1}{f}$

3

**Equations 1, 3, 8, 10 and 11 are for Higher Tier only.**

**[Turn over]**

7	<b>magnification = <math>\frac{\text{image height}}{\text{object height}}</math></b>	
8	<b>force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density × current × length</b>	<b><math>F = B I l</math></b>
9	<b>thermal energy for a change of state = mass × specific latent heat</b>	<b><math>E = m L</math></b>

10	<p style="text-align: center;"> <b>potential difference across primary coil</b>  <hr/> <b>potential difference across secondary coil</b>   <b>=</b>  <hr/> <b>number of turns in primary coil</b>  <hr/> <b>number of turns in secondary coil</b> </p>	$\frac{V_p}{V_s} = \frac{n_p}{n_s}$
11	<p style="text-align: center;"> <b>potential difference across primary coil</b>  <b>× current in primary coil</b>   <b>= potential difference across secondary</b>  <b>coil × current in secondary coil</b> </p>	$V_p I_p = V_s I_s$

**Equations 1, 3, 8, 10 and 11 are for Higher Tier only.**

**[Turn over]**

12	For gases: pressure $\times$ volume = constant	$p V =$ <i>constant</i>
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