

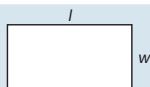
Pearson Edexcel GCSE (9-1)

Mathematics: need-to-know formulae

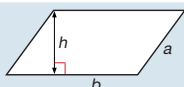
quals.pearson.com/gcsemathsformulae

Areas

Rectangle = $l \times w$



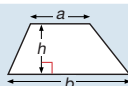
Parallelogram = $b \times h$



Triangle = $\frac{1}{2} b \times h$



Trapezium = $\frac{1}{2}(a + b)h$

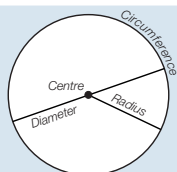


Circles

Circumference = $\pi \times \text{diameter}$, $C = \pi d$

Circumference = $2 \times \pi \times \text{radius}$, $C = 2\pi r$

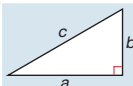
Area of a circle = $\pi \times \text{radius squared}$, $A = \pi r^2$



Pythagoras

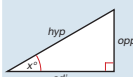
Pythagoras' Theorem

For a right-angled triangle,
 $a^2 + b^2 = c^2$



Trigonometric ratios (new to F)

$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}$, $\cos x^\circ = \frac{\text{adj}}{\text{hyp}}$, $\tan x^\circ = \frac{\text{opp}}{\text{adj}}$



Quadratic equations

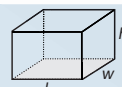
The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$,

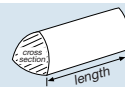
where $a \neq 0$, are given by $x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Volumes

Cuboid = $l \times w \times h$



Prism = area of cross section $\times$ length



Cylinder = $\pi r^2 h$



Volume of pyramid = $\frac{1}{3} \times \text{area of base} \times h$



Compound measures

Speed

$\text{speed} = \frac{\text{distance}}{\text{time}}$



Density

$\text{density} = \frac{\text{mass}}{\text{volume}}$



Pressure

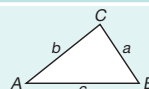
The formula for pressure does not need to be learnt, and will be given within the relevant examination questions.

Trigonometric formulae

Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle = $\frac{1}{2} ab \sin C$



Foundation tier formulae

Higher tier formulae