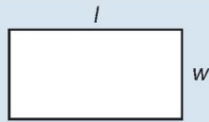


# Edexcel GCSE (9-1) Maths: need-to-know formulae

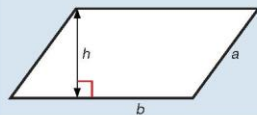
[www.edexcel.com/gcsemathsformulae](http://www.edexcel.com/gcsemathsformulae)

## Areas

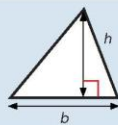
Rectangle =  $l \times w$



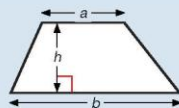
Parallelogram =  $b \times h$



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



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

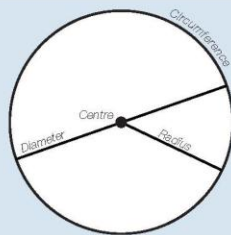


## Circles

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

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

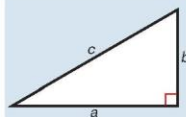
Area of a circle =  $\pi \times \text{radius squared}$   $A = \pi r^2$



## Pythagoras

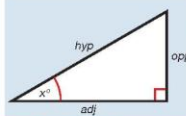
### Pythagoras' Theorem

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



### Trigonometric ratios (new to F)

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



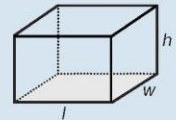
## Quadratic equations

### The Quadratic Equation

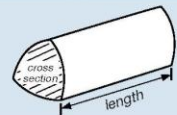
The solutions of  $ax^2 + bx + c = 0$ ,  
where  $a \neq 0$ , are given by  $x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

## Volumes

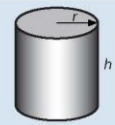
Cuboid =  $l \times w \times h$



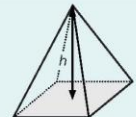
Prism = area of cross section  $\times$  length



Cylinder =  $\pi r^2 h$



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



## Compound measures

### Speed

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



### Density

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

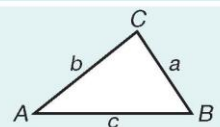


## Trigonometric formulae

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 =  $\frac{1}{2} ab \sin C$



Higher and Foundation

Higher tier only