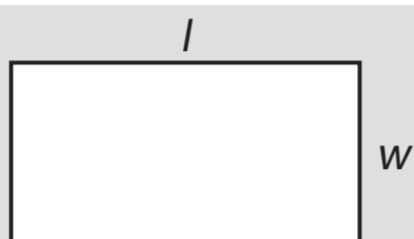


# Pearson Edexcel GCSE (9–1)

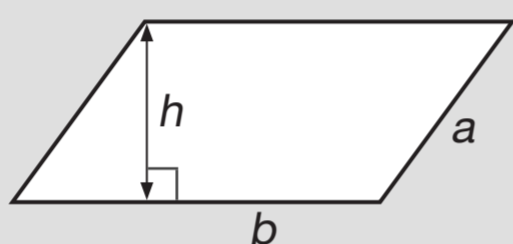
## Mathematics: need-to-know formulae

### Areas

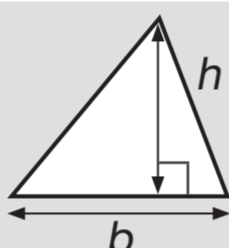
Rectangle =  $l \times w$



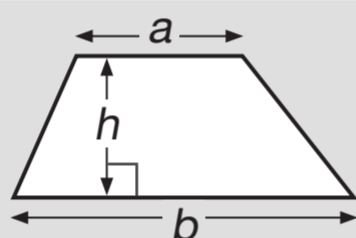
Parallelogram =  $b \times h$



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



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

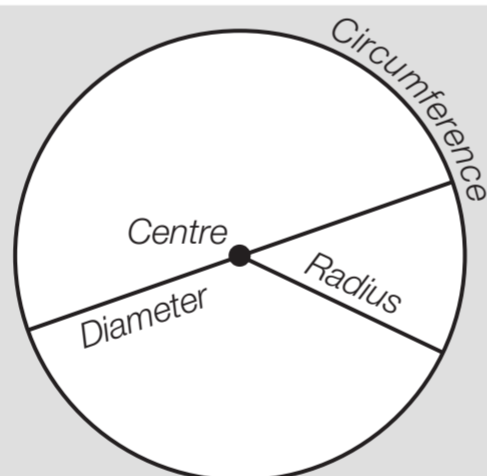


### Circles

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

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

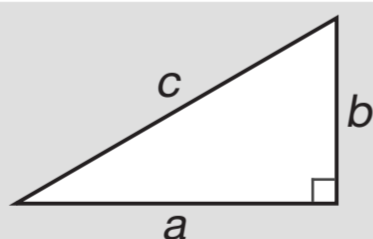
Area of a circle =  $\pi \times \text{radius squared}$ ,  $A = \pi r^2$



### Pythagoras

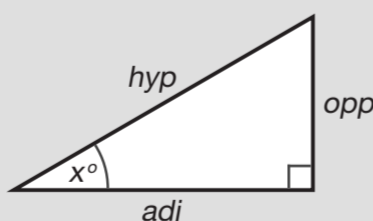
#### Pythagoras' Theorem

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



#### Trigonometric ratios (new to F)

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



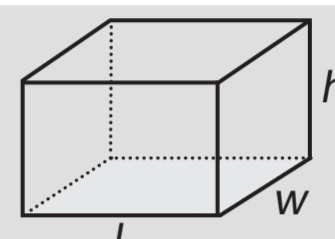
### Quadratic equations

#### The Quadratic Equation

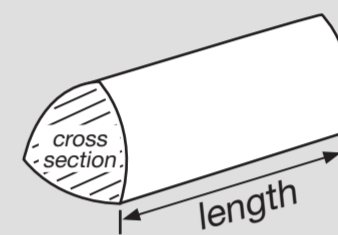
The solutions of  $ax^2 + bx + c = 0$ ,  
where  $a \neq 0$ , are given by  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

### Volumes

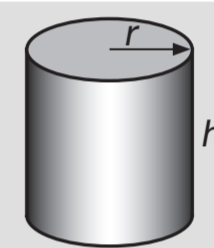
Cuboid =  $l \times w \times h$



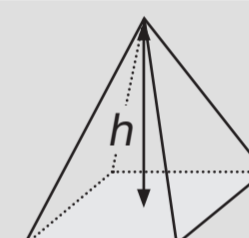
Prism = area of cross section  
 $\times \text{length}$



Cylinder =  $\pi r^2 h$



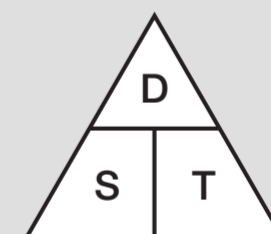
Volume of pyramid =  
 $\frac{1}{3} \times \text{area of base} \times h$



### Compound measures

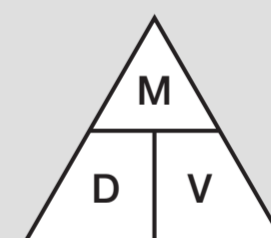
#### Speed

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



#### Density

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



#### Pressure

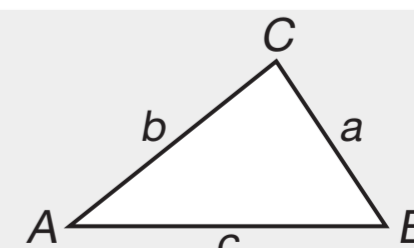
The formula for pressure does not need to be learnt, and will be given within the relevant examination questions.

### 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