



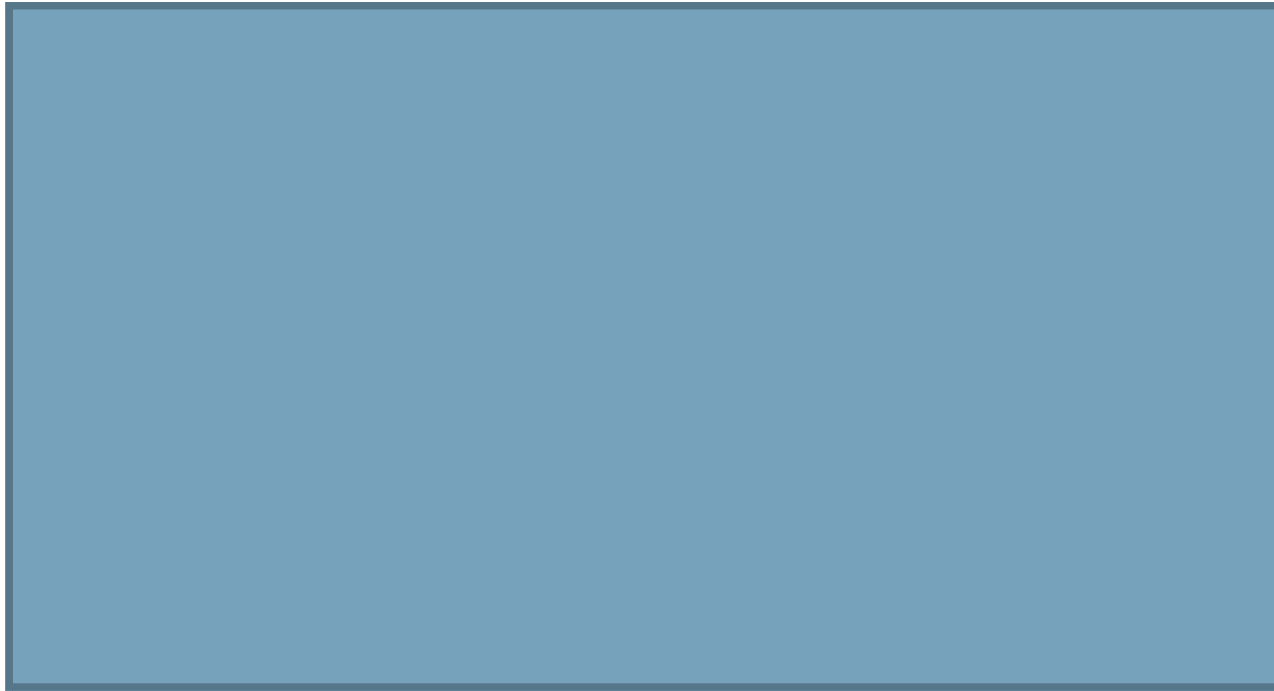
GCSE FORMULAE

You need to know this for your exam

(Higher tier only formulae are indicated)

$$\text{Rectangle} = l \times w$$

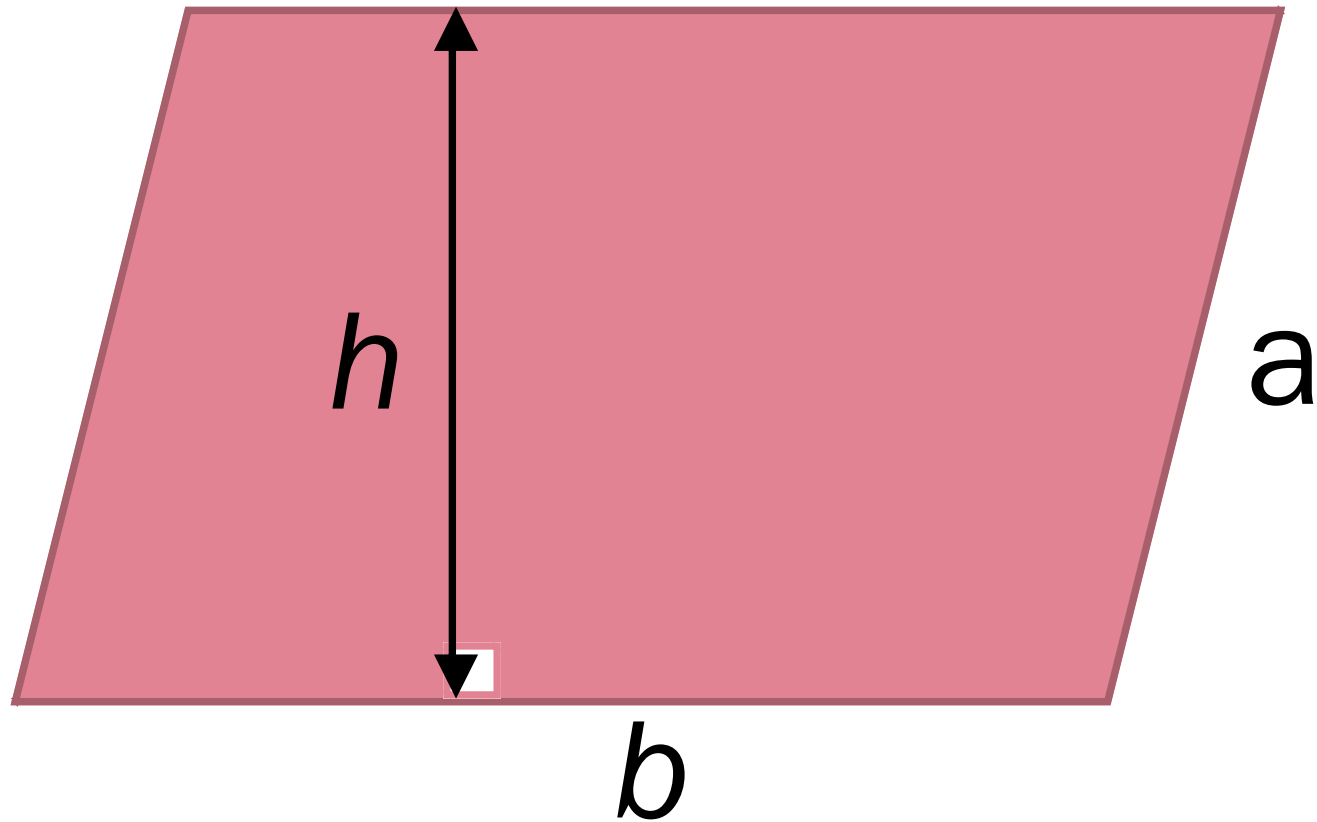
w



l

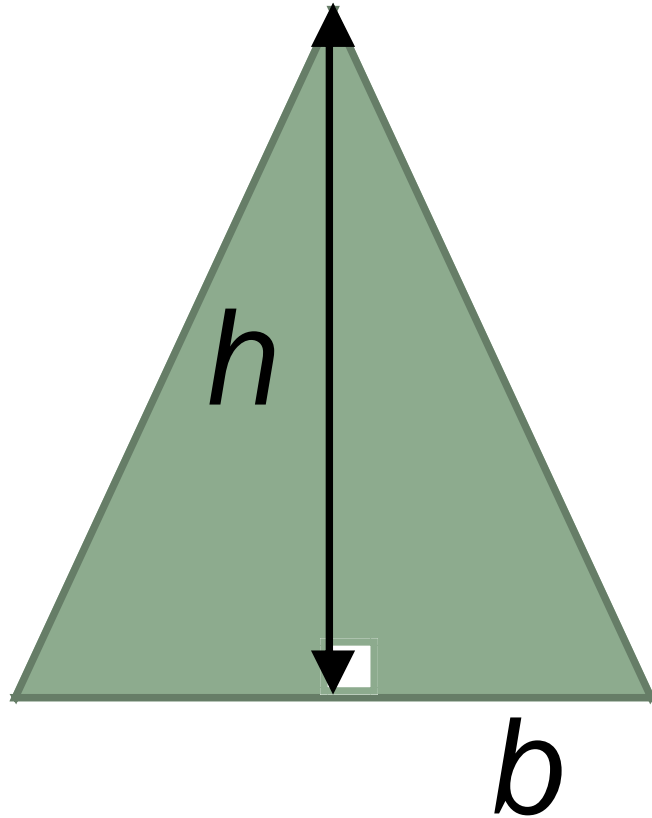
AREA

Parallelogram = $b \times h$



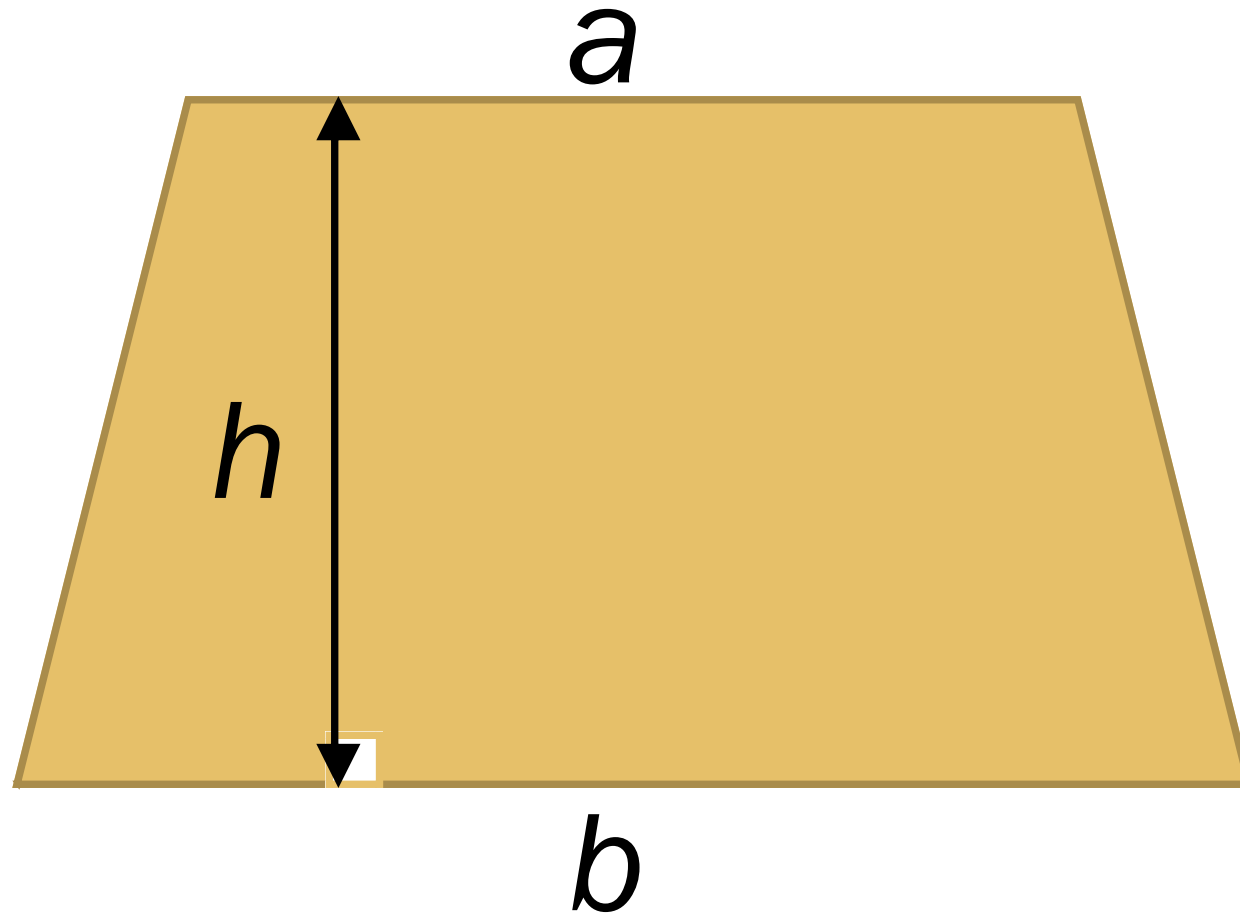
AREA

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



AREA

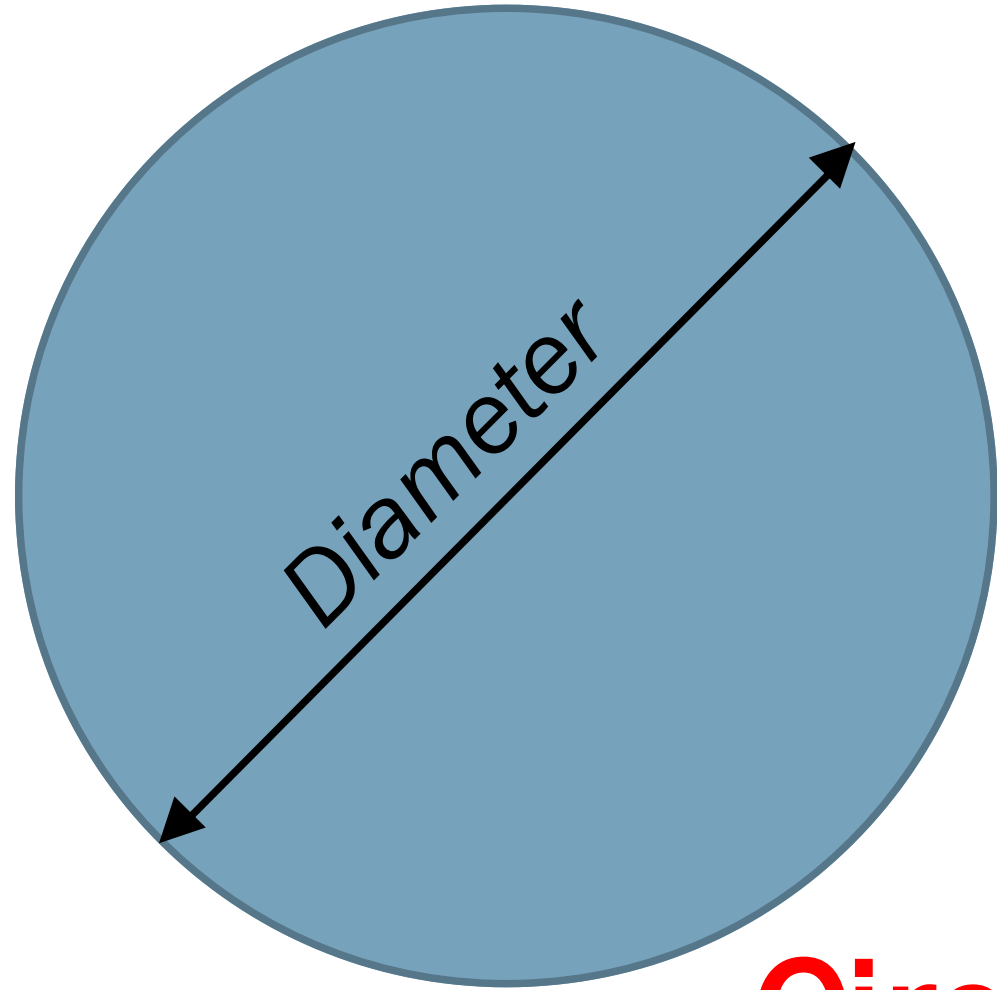
$$\text{Trapezium} = \frac{1}{2} (a+b) \times h$$



AREA

Circumference = $\pi \times \textit{diameter}$

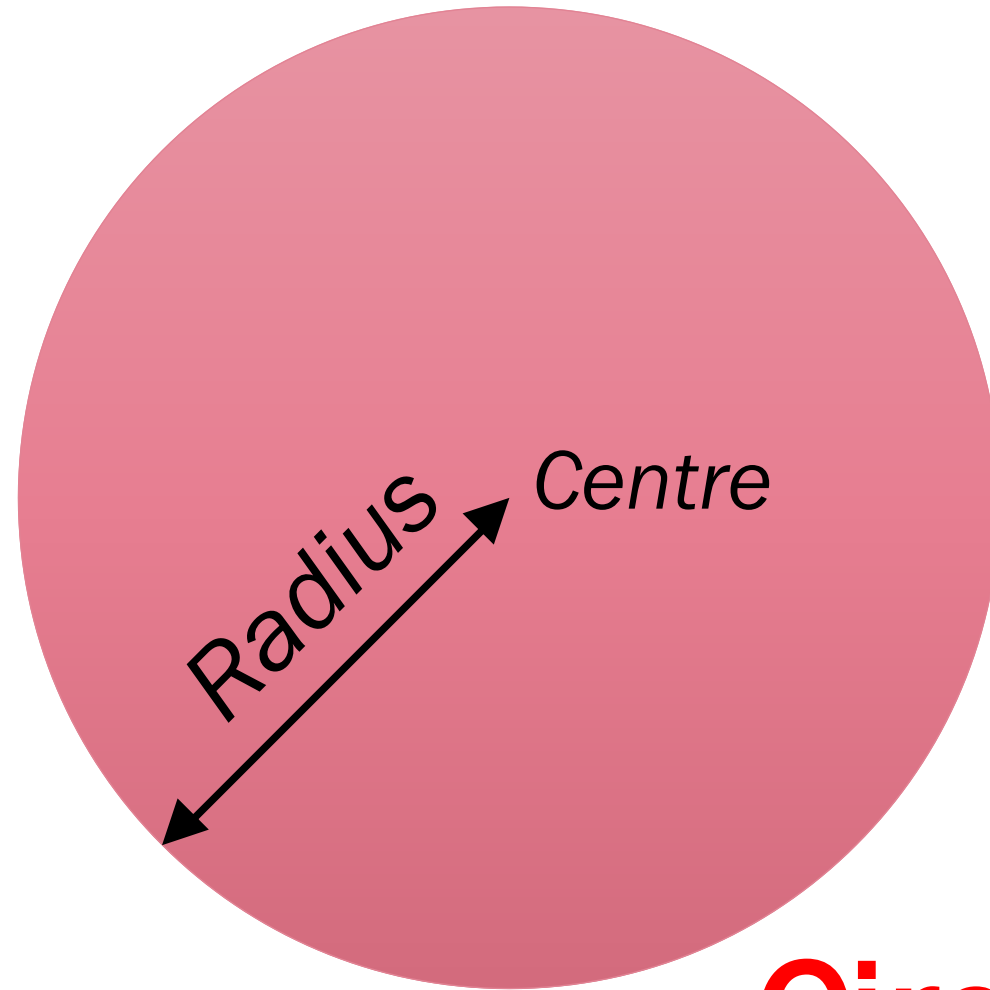
$$C = \pi d$$



Circles

Circumference = $2 \times \pi \times \textit{radius}$

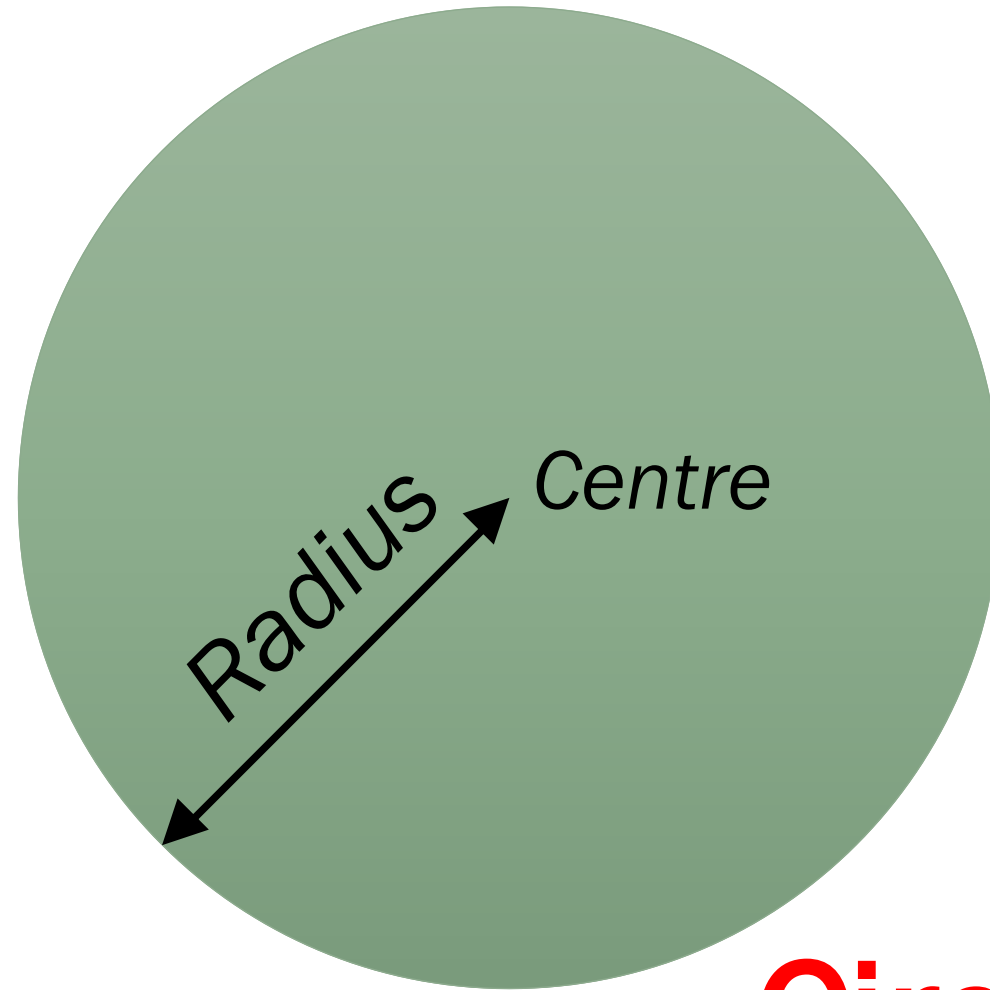
$$C = 2\pi r$$



Circles

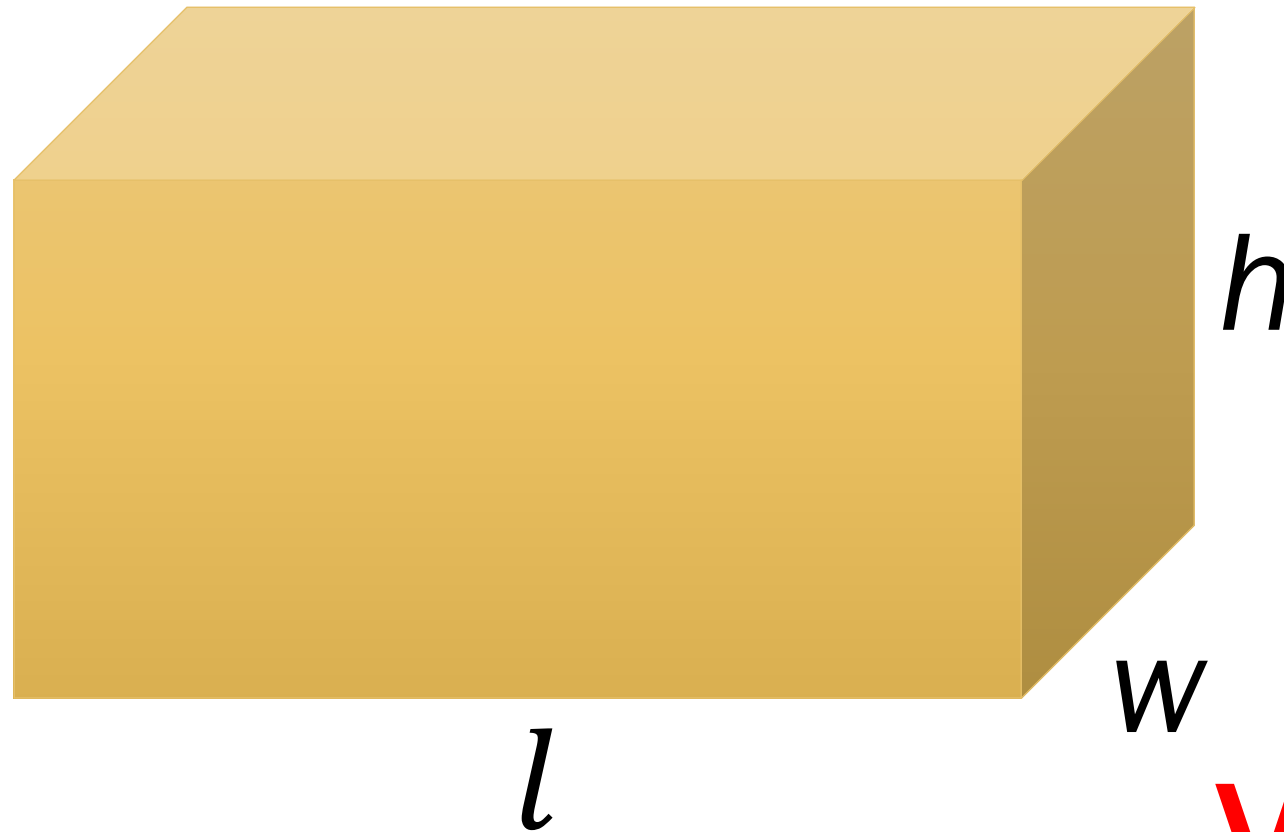
Area = $\pi \times \textit{radius} \times \textit{radius}$

$$A = \pi r^2$$



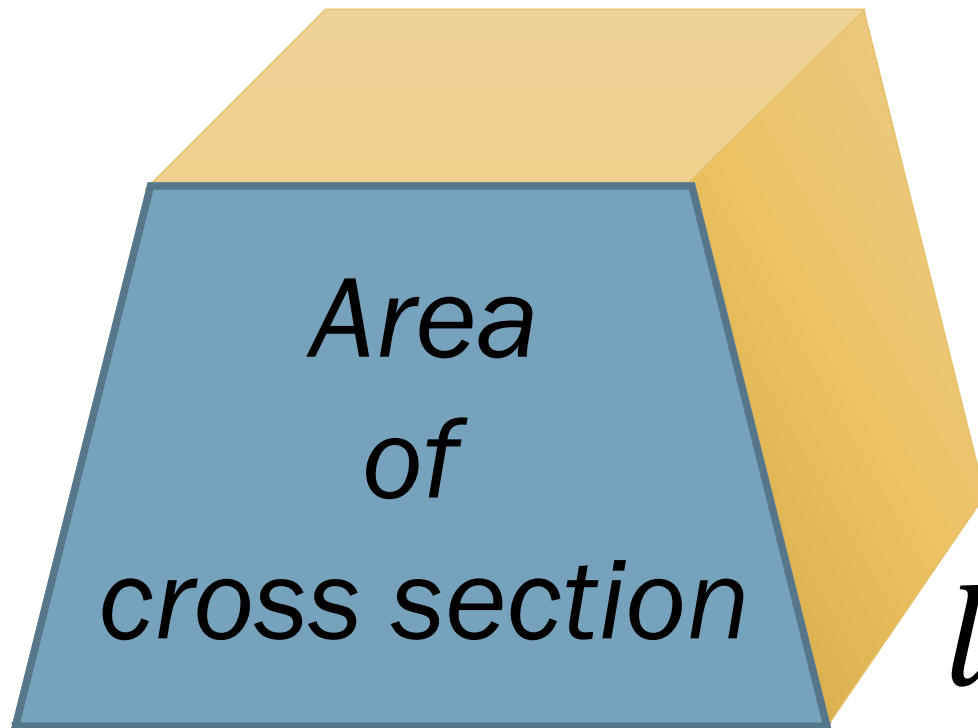
Circles

$$\text{Cuboid} = l \times w \times h$$



VOLUME

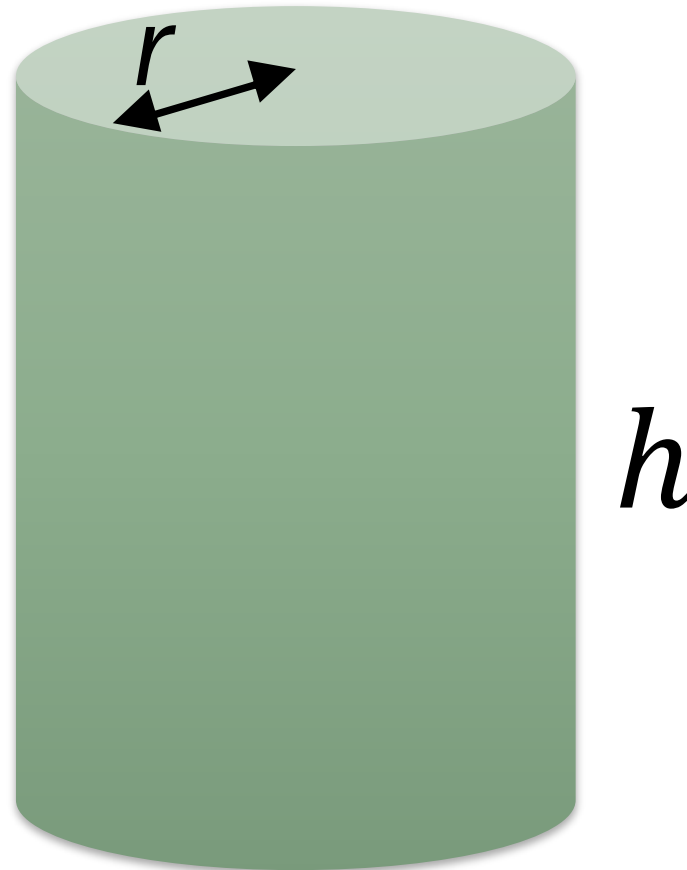
Prism = *area of cross section* \times *length*



VOLUME

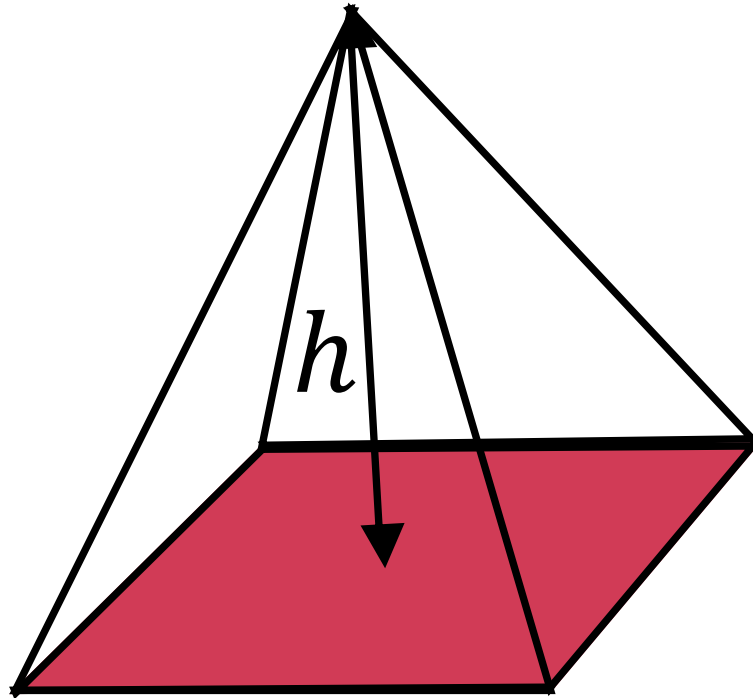
Cylinder = area of circle \times *height*

$$\text{Cylinder} = \pi r^2 h$$



VOLUME

$$\text{Pyramid} = \frac{1}{3} \text{ area of base} \times \textit{height}$$



VOLUME

Higher tier only

www.mathssandpit.co.uk/blog

$$\text{Speed} = \text{Distance} \div \text{Time}$$

The clue is in the units

eg speed in m/s, indicates metres \div seconds

COMPOUND MEASURES

Density = Mass \div Volume

*The clue is in the units
eg density in g/cm³,
indicates weight in grams \div volume in cm³*

COMPOUND MEASURES

Pressure = Force \div Area

The clue is in the units

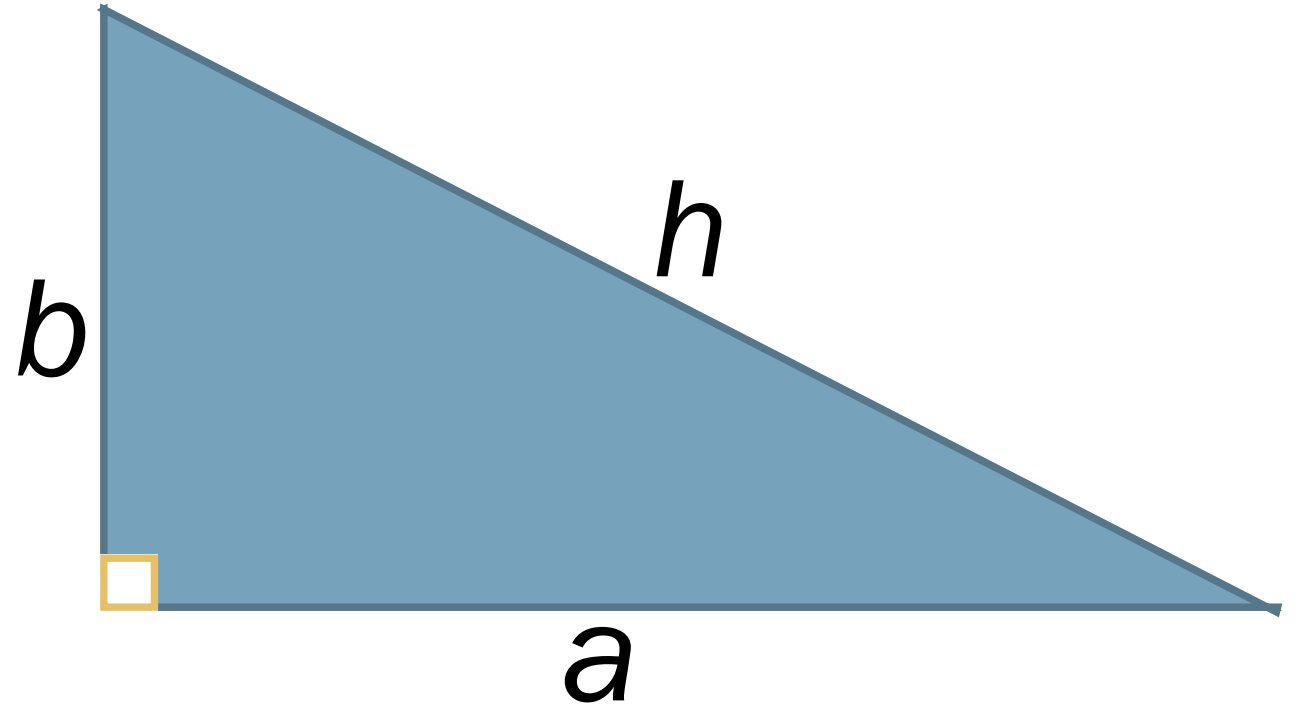
eg speed in N/m^2 ,

indicates force in Newtons \div area in m^2

COMPOUND MEASURES

Pythagoras

$$a^2 + b^2 = h^2$$



(h is always the hypotenuse)

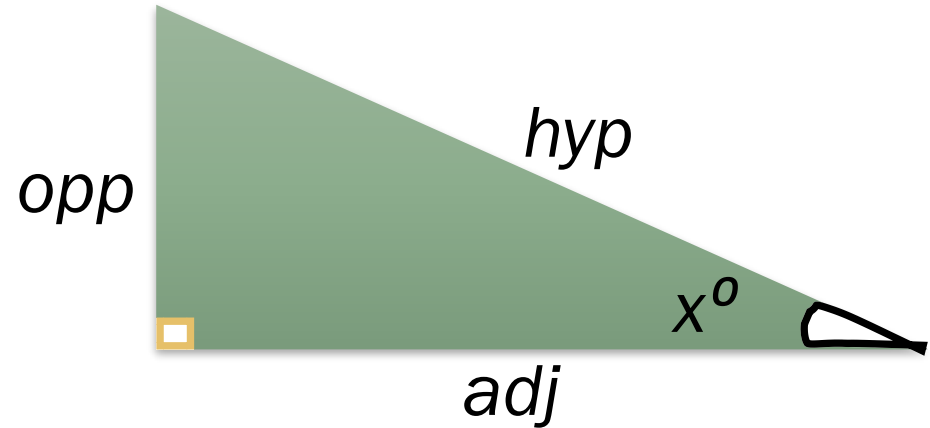
RIGHT-ANGLED TRIANGLES

Trigonometry

$$\sin(x^\circ) = \frac{opp}{hyp}$$

$$\cos(x^\circ) = \frac{adj}{hyp}$$

$$\tan(x^\circ) = \frac{opp}{adj}$$

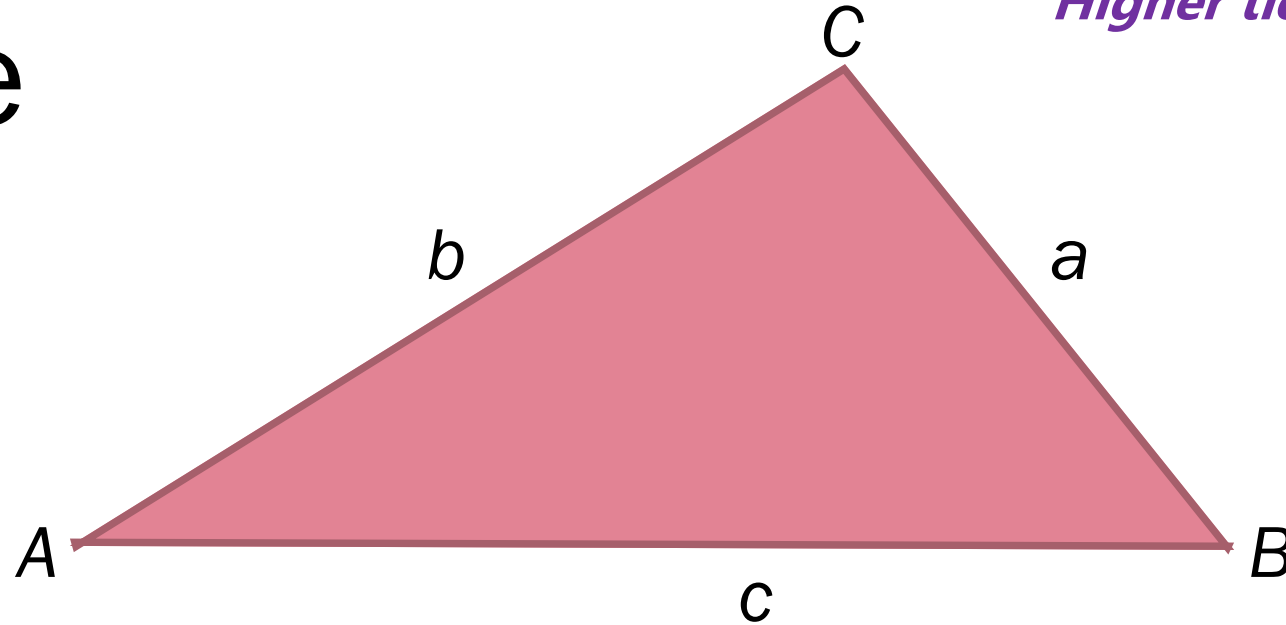


Check your
calculator is in
degrees

RIGHT-ANGLED TRIANGLES

Sine Rule

Higher tier only



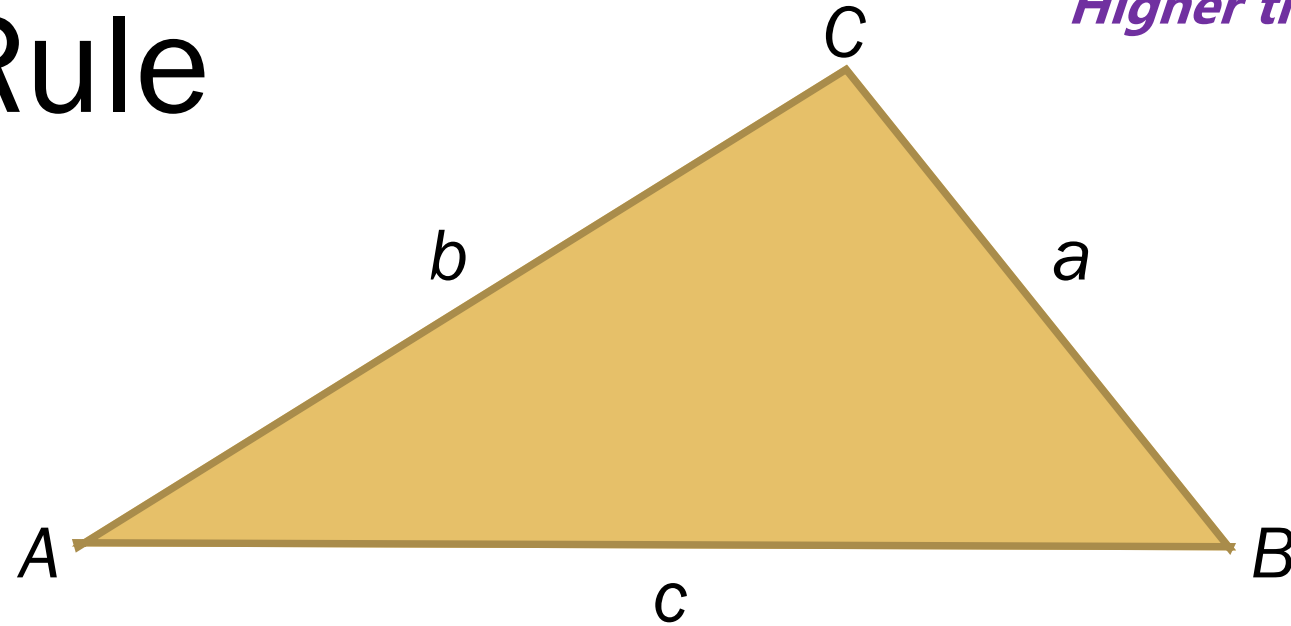
$$\frac{a}{\sin(A)} = \frac{b}{\sin(B)} = \frac{c}{\sin(C)}$$

Check your
calculator is in
degrees

NON-RIGHT-ANGLED TRIANGLES

Cosine Rule

Higher tier only



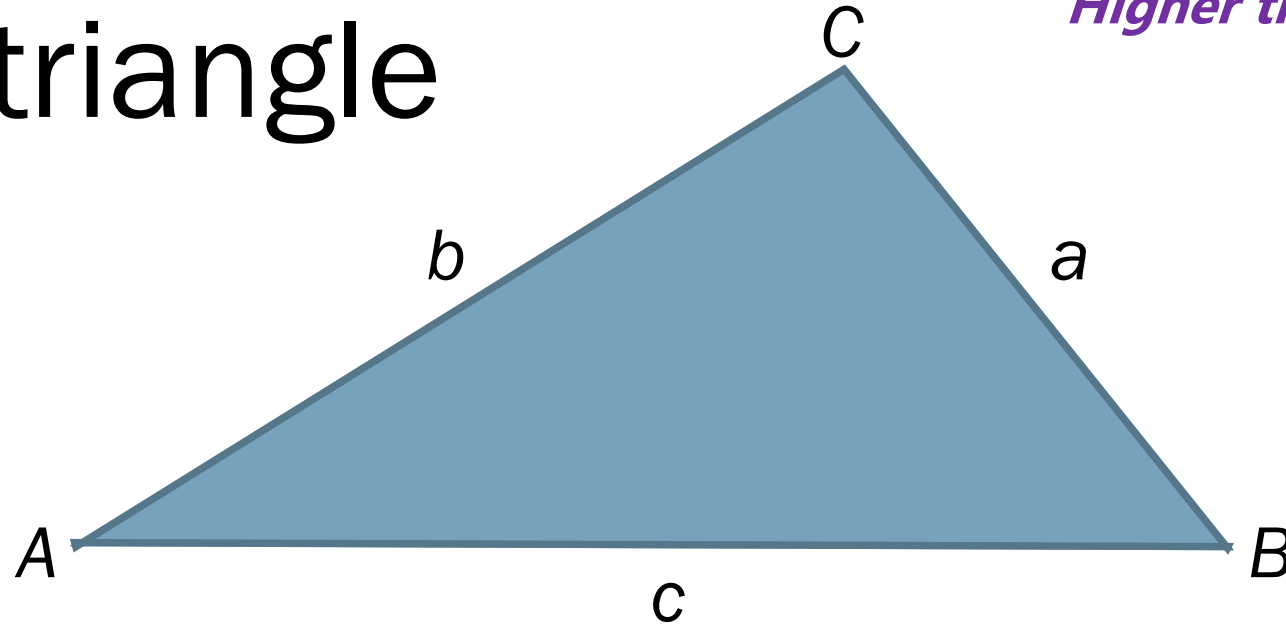
$$a^2 = b^2 + c^2 - 2bc \times \cos(A)$$

Check your
calculator is in
degrees

NON-RIGHT-ANGLED TRIANGLES

Area of a triangle

Higher tier only



$$\text{Area} = \frac{1}{2} a \times b \times \sin(C)$$

Check your
calculator is in
degrees

NON-RIGHT-ANGLED TRIANGLES

Quadratic Equations

Higher tier only

The solutions of

$$ax^2+bx+c=0,$$

where $a \neq 0$, are given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Algebra