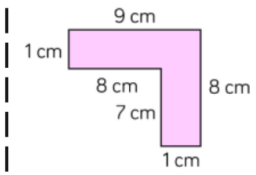
Perimeter

Length around the outside of the shape



In compound shapes make sure all the lengths have measurements

Perimeter = 9cm + 8cm + 1cm + 7cm + 8cm + 1cm
= 34cm

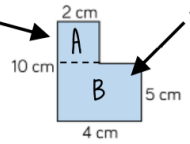
Perimeter: often asks about boundaries or walls in questions

Area

Rectangle/ Square area = Base x Height

Compound Shapes

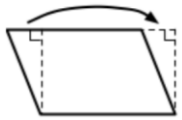
Area of A
The height of shape A is 5cm
2 x 5 = 10cm²



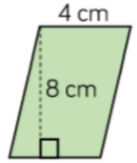
Area of B
4 x 5 = 20cm²

Total area = Area A + Area B = 10 + 20 = 30cm²

Area of parallelograms



Parallelogram = Base x Perpendicular height



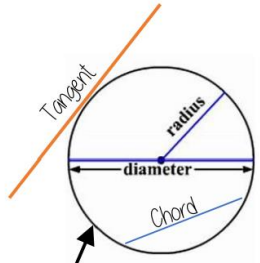
Area = 4 x 8 = 32cm²

Properties of parallelograms

- Two sets of parallel lines
- Four sides (quadrilateral)
- Interior angles = 360°
- Opposite angles are equal
- 2D shape

Parts of a circle

R



Sector (part of the circle made from two radii)

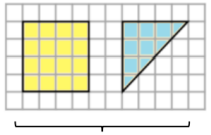
Segment (part of the circle made from a chord)

Circumference

An arc is a part of the circumference

Area of triangles

Area can be calculated by counting squares.
Often this is an estimation with triangles if it does not cut a square in half.



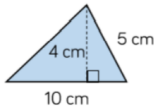
Notice the relationship between the square and the triangle.

Area triangle = $\frac{1}{2}$ area of the square

Right-angled triangles

The height of a right-angled triangle

Perpendicular heights



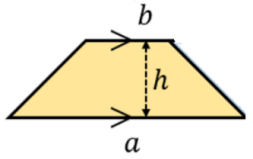
The perpendicular height meets the base at 90°

Area = $\frac{1}{2}$ x 10 x 4 = 20cm²

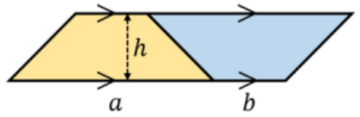
Area triangle = $\frac{1}{2}$ x base x perpendicular height

Area of a trapezium

Area of a trapezium
$\frac{(a+b) \times h}{2}$



Why?



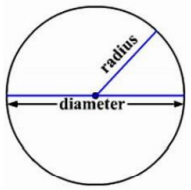
- Two congruent trapeziums make a parallelogram
- New length (a + b) x height
- Divide by 2 to find area of one

Area of a circle (Calculator)

SHIFT ×10ˣ

How to get π symbol on the calculator

Area of a circle
π x radius²

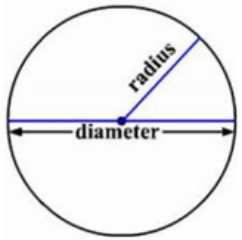


It is important to round your answer suitably – to significant figures or decimal places. This will give you a decimal solution that will go on forever!

Circumference of a circle

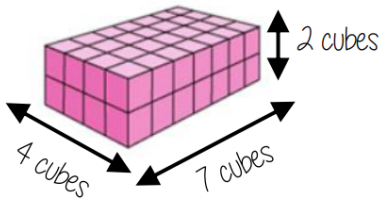
SHIFT ×10ˣ

How to get π symbol on the calculator



Circumference
π x diameter

Volume of cuboids

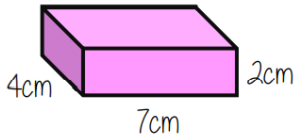


Counting cubes

Counting the cubes = 56cm^3

OR

There are 28 cubes on the bottom row and two rows.
28 x 2 = 56



Volume of cuboid = **length x width x height**

Volume = 4 x 7 x 2 = 56cm^3

Properties of cuboids

- 3D shape
- 8 vertices
- 6 faces
- 12 edges

Remember multiplication is commutative so the values can be multiplied in any order

Volumes

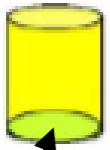
Volume is the 3D space it takes up – also known as capacity if using liquids to fill the space

Counting cubes

Some 3D shape volumes can be calculated by counting the number of cubes that fit inside the shape.

Cubes/ Cuboids = **base x width x height**

Remember multiplication is commutative



Cross section

Cross section

Prisms and cylinders
= **area cross section x height**

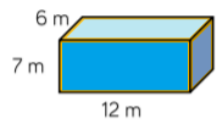
Height can also be described as depth

Areas – square units
Volumes – cube units

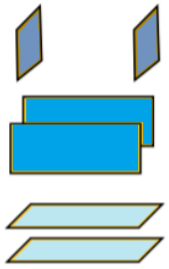
Areas and volumes can be left in terms of pi π

Surface area

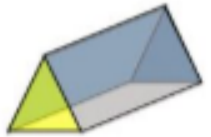
Sketching nets first helps you visualise all the sides that will form the overall surface area



For cubes and cuboids you can also find one of each face and double it



Sides	6 x 7 6 x 7	Sum of all sides is surface area
Front and back	12 x 7 12 x 7	
Top and Bottom	12 x 6 12 x 6	



For other shapes = not all the sides are the same, so calculate the individually