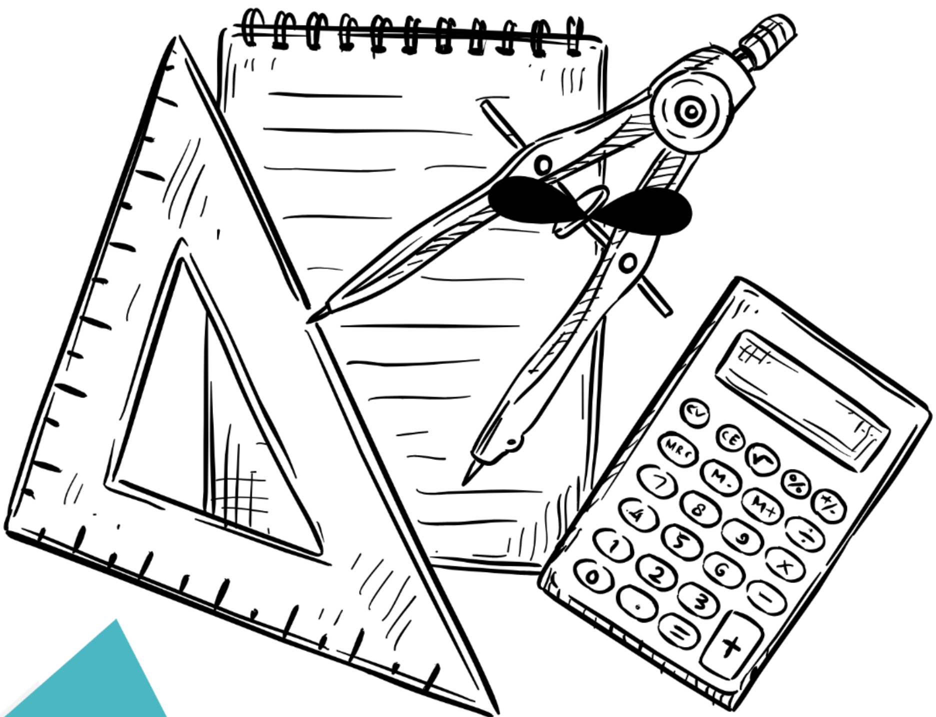
Grade 6 Term 3

MATHEMATICS GUIDE



Grade 6 Mathematics Guide
Term 3

Section 1 – Length

Indicators of length are as follows:

Height **Width** **Depth** **Length** **Thickness**

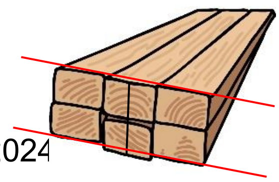
Height is defined as the vertical distance from the top of an object to its base.

Width refers to the horizontal measurement or distance measured from side to side.

Depth refers to the vertical distance between the nearest end and the farthest end of an object

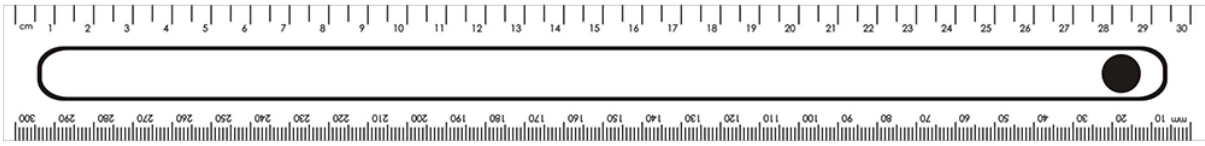
Length measures the distance between two points. It represents the magnitude of a line segment of an object.

Thickness refers to the distance between the top and bottom surfaces of an object.



Measuring Instruments

Ruler
On a ruler, the side with mm markings will have shorter distances between numbered marks compared to the cm side. The numbered marks on the cm side go up to 30 cm, and the mm side goes up to 300 mm.



Meter Stick / Yardstick
A meter stick is a measuring tool used to measure length, it typically has a length of 1 meter (m) and is marked with various divisions for precise measurements.

Measuring Tape
A measuring tape is a measuring tool used to measure lengths beyond 1 meter, Stretching the measuring tape across/around the object.

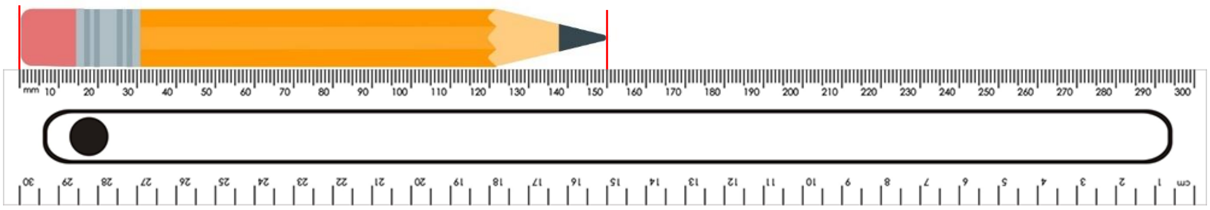
Trundle Wheel / Measuring Wheel
A trundle wheel consists of a circular wheel attached to a handle. As you roll the wheel along a surface, it counts the number of rotations, allowing the device to calculate the distance covered by the wheel.

Units of measurement

Kilometres	km	The road is 28 km long.
Metres	m	The car is 1,8 m side to side.
Centimetres	cm	The pen is 15 cm in length.
Millimetres	mm	The gap is 8 mm wide.

Measuring the length of an object with a ruler.

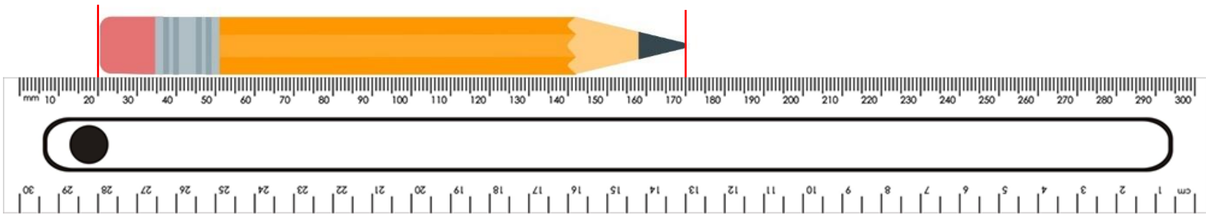
- Place the side/edge of the object you want to measure against the first line on the ruler. (mm side)
- Align the object with the line (0mm) , not the edge of the ruler.
  Remember to keep the ruler flat against the measured side of the object for accurate results.
- Identify the nearest mark to the other side/edge of the object.
  This mark tells you the length of the object is in millimetres (mm).
- Each millimetre (mm) represents one-tenth ($\frac{1}{10} = 0.1$) of a centimetre (cm)



The pencil is approximately 150 mm long, this is the same as 15 cm.

Measuring the length of an object with a ruler. (offset to 0 position)

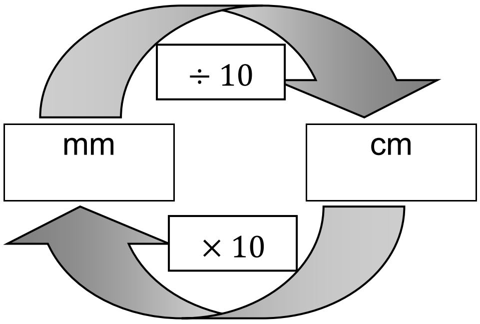
- Placing the object side/edge offset to any long lines on the ruler left side (here I placed the end of the pencil on the 20 mm mark)
- Remember to keep the ruler flat against the measured side of the object for accurate results.
- Identify the nearest mark to the other side/edge of the object.
  This mark tells you the length of the object is in millimetres (mm).
  (with a little maths we can work out the pencils true measurement length)



We take the total (170 mm) and subtract the difference (20 mm)
170 mm – 20 mm = 150 mm long.

Converting millimetres (mm) & centimetres (cm)

10 millimetres (10 mm) = 1 centimetre (1 cm)
1 millimetre (1 mm) = one-tenth ($\frac{1}{10}$) of a centimetre (1 cm)
1 millimetre (1 mm) = 0.1 cm

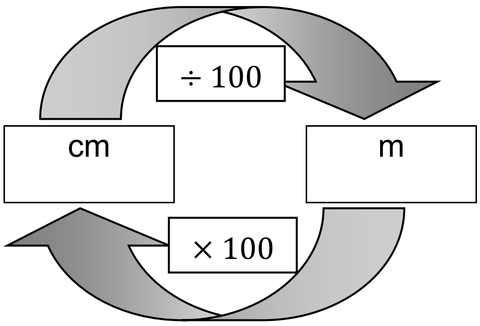


Examples:

150 mm in cm = 150 ÷ 10 = 15 cm
80 mm in cm = 80 ÷ 10 = 8 cm
5 cm in mm = 5 × 10 = 50 mm
9,2 cm in mm = 9,2 × 10 = 92 mm
5 cm 8 mm in mm = (5 × 10) + 8 = 58 mm
3 cm 12 mm in cm = (12 ÷ 10) + 3 = 4,2 cm

Converting centimetres (cm) & metres (m)

100 centimetre (cm) = 1 metre (m)
1 centimetre (cm) = $\frac{1}{100}$ metre (m)
1 centimetre (cm) = 0.01 metre (m)

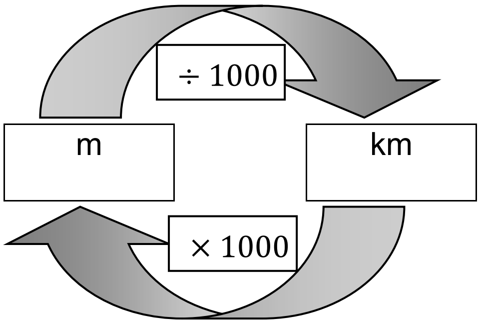


Examples:

3 m in cm = 3 × 100 = 300 cm
9,5 m in cm = 9,5 × 100 = 950 cm
500 cm in m = 500 ÷ 100 = 5 m
260 cm in m = 260 ÷ 100 = 2,6 m
4 m 30 cm in cm = (4 × 100) + 30 = 430 cm
325 cm in m = 325 ÷ 100 = 3,25 m

Converting metres (m) & kilometres (km)

1 000 metres (m) = 1 kilometre (km)
1 metre (m) = $\frac{1}{1\,000}$ kilometre (km)
1 metre (m) = 0,001 kilometre (km)



Examples:

9 000 m in km = 9 000 ÷1 000 = 9 km
3 450 m in km = 3 450 ÷1 000 = 3,45 km
3 km in m = 3 × 1 000 = 3 000 m
9,5 km in m = 9,5 × 1 000 = 9 500 m
5 km 35 m in m = (5 × 1 000) + 35 = 5035 m
2 km 500 m in km = 2,5 km

RECAP – Fractions

Understanding what a fraction is:

A fraction represents a part of a whole
The Numerator (top number) represents how many parts we have.
The Denominator (bottom number) represents how many equal parts the whole is divided into.

Some examples of “Common” Fractions

$\frac{1}{2}$	one-half	one equal half of a whole
$\frac{1}{3}$	one-third	one of three equal parts of a whole
$\frac{1}{4}$	one-quarter	one of four equal parts of a whole
$\frac{3}{4}$	three-quarters	three of four equal parts of a whole
$\frac{1}{6}$	one-sixth	one of six equal parts of a whole
$\frac{1}{8}$	one-eighth	one of eight equal parts of a whole

Equivelent fractions: Fractions that represent the same portion of a whole.

$\frac{1}{2}$	is equivalent to	$\frac{2}{4};\frac{3}{6};\frac{4}{8};\frac{5}{10};\frac{6}{12};\frac{7}{14};\frac{8}{16};\frac{9}{18};\frac{10}{20};\ldots$
$\frac{1}{3}$	is equivalent to	$\frac{2}{6};\frac{3}{9};\frac{4}{12};\frac{5}{15};\frac{6}{18};\frac{7}{21};\frac{8}{24};\frac{9}{27};\frac{10}{30};\ldots$
$\frac{1}{4}$	is equivalent to	$\frac{2}{8};\frac{3}{12};\frac{4}{16};\frac{5}{20};\frac{6}{24};\frac{7}{28};\frac{8}{32};\frac{9}{36};\frac{10}{40};\ldots$
$\frac{1}{5}$	is equivalent to	$\frac{2}{10};\frac{3}{15};\frac{4}{20};\frac{5}{25};\frac{6}{30};\frac{7}{35};\frac{8}{40};\frac{9}{45};\frac{10}{50};\ldots$
$\frac{1}{6}$	is equivalent to	$\frac{2}{12};\frac{3}{18};\frac{4}{24};\frac{5}{30};\frac{6}{36};\frac{7}{42};\frac{8}{48};\frac{9}{54};\frac{10}{60};\ldots$
$\frac{1}{7}$	is equivalent to	$\frac{2}{14};\frac{3}{21};\frac{4}{28};\frac{5}{35};\frac{6}{42};\frac{7}{49};\frac{8}{56};\frac{9}{63};\frac{10}{70};\ldots$
$\frac{1}{8}$	is equivalent to	$\frac{2}{16};\frac{3}{24};\frac{4}{32};\frac{5}{40};\frac{6}{48};\frac{7}{56};\frac{8}{64};\frac{9}{72};\frac{10}{80};\ldots$
$\frac{1}{9}$	is equivalent to	$\frac{2}{18};\frac{3}{27};\frac{4}{36};\frac{5}{45};\frac{6}{54};\frac{7}{63};\frac{8}{72};\frac{9}{81};\frac{10}{90};\ldots$
$\frac{1}{10}$	is equivalent to	$\frac{2}{20};\frac{3}{30};\frac{4}{40};\frac{5}{50};\frac{6}{60};\frac{7}{70};\frac{8}{80};\frac{9}{90};\frac{10}{100};\ldots$

Comparing Fractions:

To compare fractions, you must find a “ common denominator ” (bottom number).

Example: Compare $\frac{3}{4}$ and $\frac{5}{8}$, which is greater ?

- The least common denominator (L.C.D.) of 4 and 8 share 8 in common.
- Convert $\frac{3}{4}$ to have a denominator of 8.
  Keep in mind that when working with equivalent fractions, any operation performed on the denominator (bottom number) should also be applied to the numerator (top number). This ensures that the new fraction maintains the same value as the original fraction.
  $\frac{3}{4} = \frac{(3\times 2)}{(4\times 2)} = \frac{6}{8}$
- We can now compare $\frac{6}{8}$ and $\frac{5}{8}$,
  6 (numerator) is greater than 5 (numerator).
- Therefor, $\frac{6}{8} > \frac{5}{8} = \frac{3}{4} > \frac{5}{8}$

Decimals and Decimal Fractions

Decimal fractions are a special type of fractions where the denominator is a power of 10 or a multiple of 10 (such as 10, 100, 1000, and so on). These fractions are typically expressed using decimal numbers – ′numbers with a decimal point’.
Example: $\frac{1}{10}$, $\frac{2}{100}$, and $\frac{7}{1000}$ are all decimal fractions.

When we write decimal fractions, we consider the place value of digits from left to right.
The fractional places values include tenths, hundredths, thousandths, and so on.

Fraction		Units/Ones	Decimal Point	tenths	hundredths	thousandths
$\frac{1}{10}$	=	0	.	1	-	-
$\frac{2}{100}$	=	0	.	0	2	-
$\frac{3}{1000}$	=	0	.	0	0	3

Decimal fractions allow us to seamlessly switch between fractions and decimals. We rewrite them with a decimal point instead of a traditional denominator.

Some examples of “Common” Fractions as decimal fractions
The easiest way to convert a fraction to a decimal equivalent is to divide the numerator (the top of the fraction) by the denominator (the bottom of the fraction)
If you don’t have a calculator handy, you can use long division to find the decimal equivalent.

Common Fraction	**Decimal Equivalent**	**Decimal Fraction**
$\frac{1}{2}$	0.5	$\frac{5}{10}$
$\frac{1}{3}$	0.333 recuring	$\frac{333}{1000}$
$\frac{1}{4}$	0.25	$\frac{25}{100}$
$\frac{3}{4}$	0.75	$\frac{75}{100}$
$\frac{1}{6}$	0.167 (rounded to three decimal places)	$\frac{167}{1000}$
$\frac{1}{8}$	0.125	$\frac{125}{1000}$

Section 2 – 2-D Shapes

Two-dimensional shapes exist on a flat plane (like a piece of paper) and have only length and width (no thickness).

What is a Polygon?
Polygons have at least three sides and three angles, it does not have curved sides and their sides must be straight. The sides of a polygon are also called its edges. The points where two sides meet are the vertices (or corners) of a polygon.

Regular polygon characteristics:

- All sides are of equal length
- All interior angles are of equal measure
- They can be both **convex** (no angles greater than 180°) and **concave** (some angles greater than 180°)
- Examples of regular polygons include equilateral triangles, squares, pentagons, hexagons, and octagons.

Irregular polygon characteristics:

- Sides of varying lengths
- Angles of different measures
- Irregular polygons can be **convex**, **concave**, or even **complex** (where sides cross over each other).
- irregular polygons include most random shapes that do not fit the regular polygon criteria.

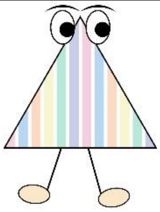
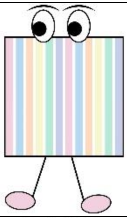
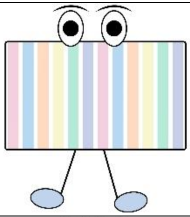
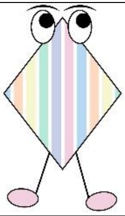
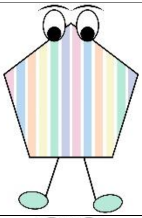
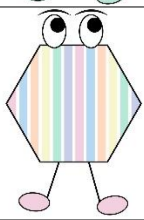
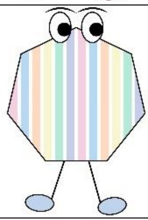
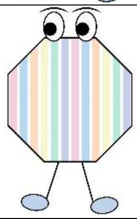
What is a Parallelogram?

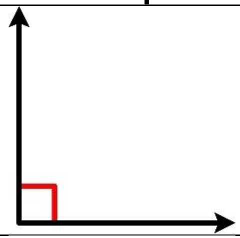
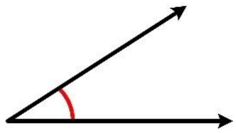
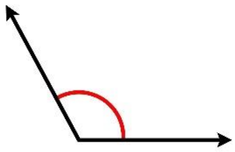
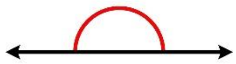
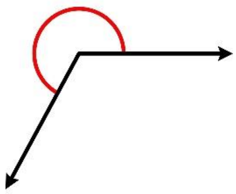
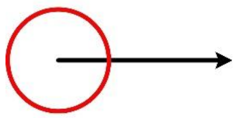
A parallelogram is a unique shape with four sides. Its defining feature is that opposite sides run parallel to each other (running side by side — they never meet).
The opposite sides of a parallelogram have equal lengths too. So, if you measure one side, the opposite side will be the same length.
The angles across from each other (called opposite angles) are also equal in measure.

What is a Quadrilateral?

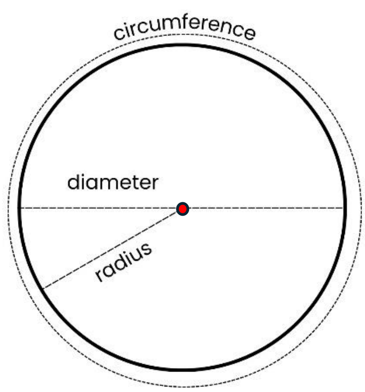
The word “quadrilateral” comes from Latin: “quadri” means **four**, and “latus” means **side**. So, a quadrilateral has four sides, four angles, and four corners (vertices).
Examples: playing cards, chess boards, or road signs.

What are diagonals?
If you draw a line from one corner (vertex) through to another (inside the quadrilateral), those are called diagonals.

Types of Shapes	Example	Description
Triangle		A triangle is a polygon with three straight sides and three interior angles.
Square		A perfect square has four equal sides, every angle in a square is a right angle of 90°
Rectangle		A rectangle is a four-sided shape where every angle is a right-angle of 90°
Rhombus		A rhombus is where all sides are equal in length, opposite sides are parallel to each other, and opposite angles are equal in measure.
Pentagon		A pentagon is a polygon with five sides and five interior angles.
Hexagon		A hexagon is a polygon with six sides and six interior angles.
Heptagon		A heptagon is a polygon with seven sides and seven interior angles.
Octagon		An octagon is a polygon with eight sides and eight interior angles.

Type of Angle	Example	Description
Right Angle		A right-angle measures exactly 90°
Acute Angle		An acute angle is smaller than a right angle. It measures less than 90°
Obtuse Angle		An obtuse angle is larger than a right angle. It measures more than 90°
Straight Angle		A straight angle is a flat line. It measures exactly 180°
Reflex Angle		A reflex angle is greater than a straight angle. It measures more than 180° but less than 360°
Revolution		A revolution represents a full rotation of 360°, spinning an object around a central point until it returns to its original position of 0°

Working with circles

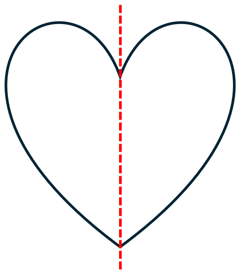
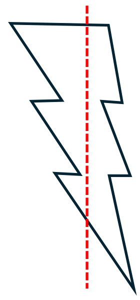


The **circumference** of a circle is the total distance around its edge.
The **radius** of a circle is the distance from the centre of the circle to any point on its edge.
The **diameter** is the distance across the circle, from one side to the other, passing through the centre.

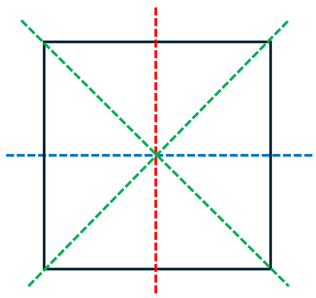
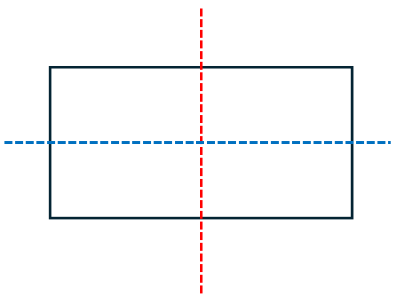
Section 3 – Symmetry

Shapes are **symmetrical** when it has two **matching** halves.
A shape is **Asymmetrical** when its two halves **do not match** exactly.

Example of symmetry using a line to divide the shapes evenly.

	
Symmetrical	**Asymmetrical**

Types of Symmetry - Lines of symmetry
This type of symmetry occurs when a shape can be folded along a line, so that one half of the shape matches exactly the other half.
(NOTE: the lines don't have to always be vertical.)

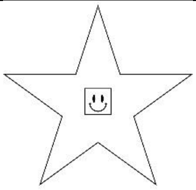
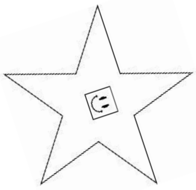
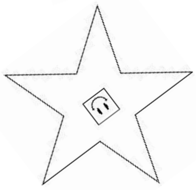
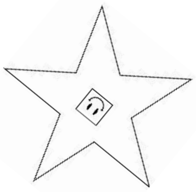
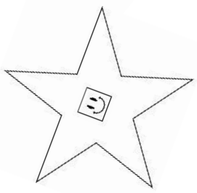
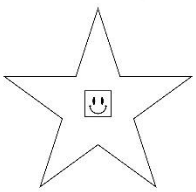
	**A square has four lines of symmetry**: • The first line of symmetry runs **vertically** through the square dividing the square equally into two rectangles • The second line of symmetry is **horizontal** and passes through the midpoint of two opposite sides, dividing the square into two equal rectangles. • The third and fourth line of symmetry are **diagonals** of the square, connecting opposite corners, dividing the square into two identical right-angle triangles.
	**A rectangle has two lines of symmetry**: • The first line of symmetry runs **vertically** through the rectangle, dividing it into two halves (each half is a mirror image of the other). • The second line of symmetry is **horizontally** across the middle of the rectangle, also dividing it into two identical halves.

Types of Symmetry – Transformations - Rotational Symmetry

Rotational Symmetry is when the shape is rotated about a **centre point**,
it looks the same as it did before the rotation.
This transformation is also known as a **turn**.

Angle of Rotation is the amount by which the shape is turned during the rotation.
Example: Rotate a shape by 90 degrees, means the angle of rotation is 90 degrees about a centre point.

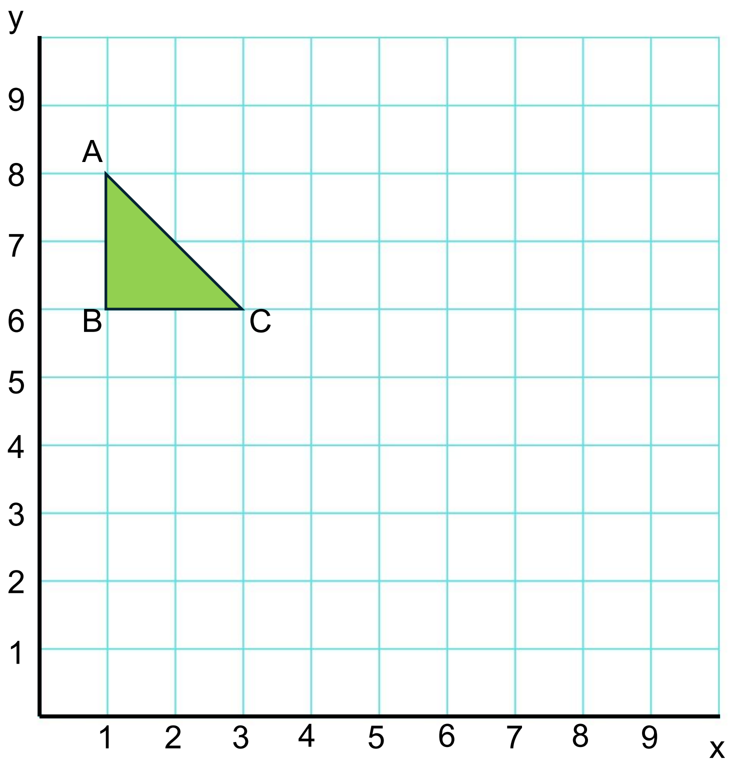
The **Orders of Rotational Symmetry** is the number of times a shape fits into its original outline by when it is rotated a full revolution of 360 degrees.

Shape Rotation	Angle of Rotation	Orders of Rotation
	Original position at 0 degrees rotation	0
	1st position at 72 degrees rotation	1
	2nd position at 144 degrees rotation	2
	3rd position at 216 degrees rotation	3
	4th position at 288 degrees rotation	4
	5th position at 360 degrees revolution	5

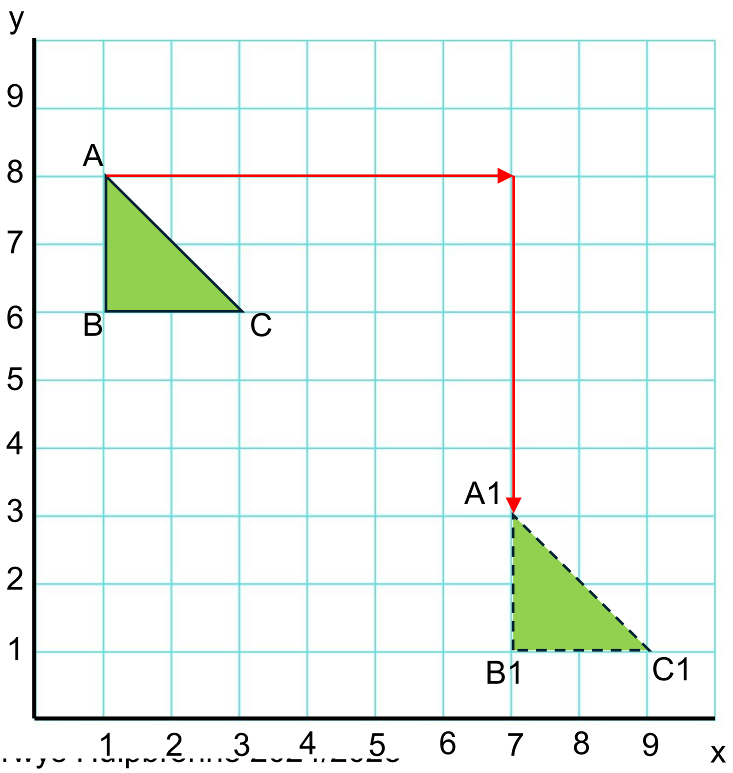
Types of Symmetry – Transformations – Translation

This type of transformation slides a shape in a specific direction without altering its overall appearance, size or shape. It's like moving the shape from one spot to another. This transformation is also known as a **slide**.

Example**:** The graph demonstrates a triangle (ABC) moving to a specified location without changing shape, size or appearance.

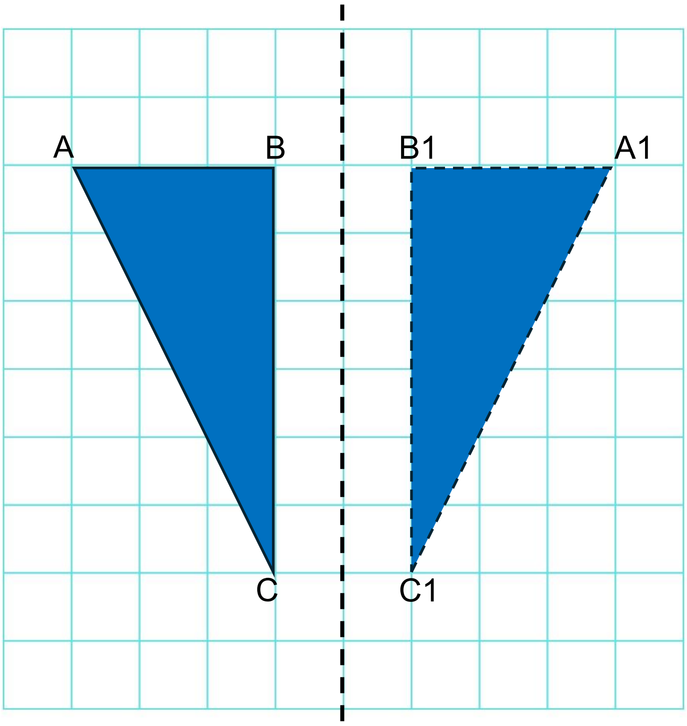


The Triangle (ABC) will now slide 6 blocks to the right & 5 blocks downward.



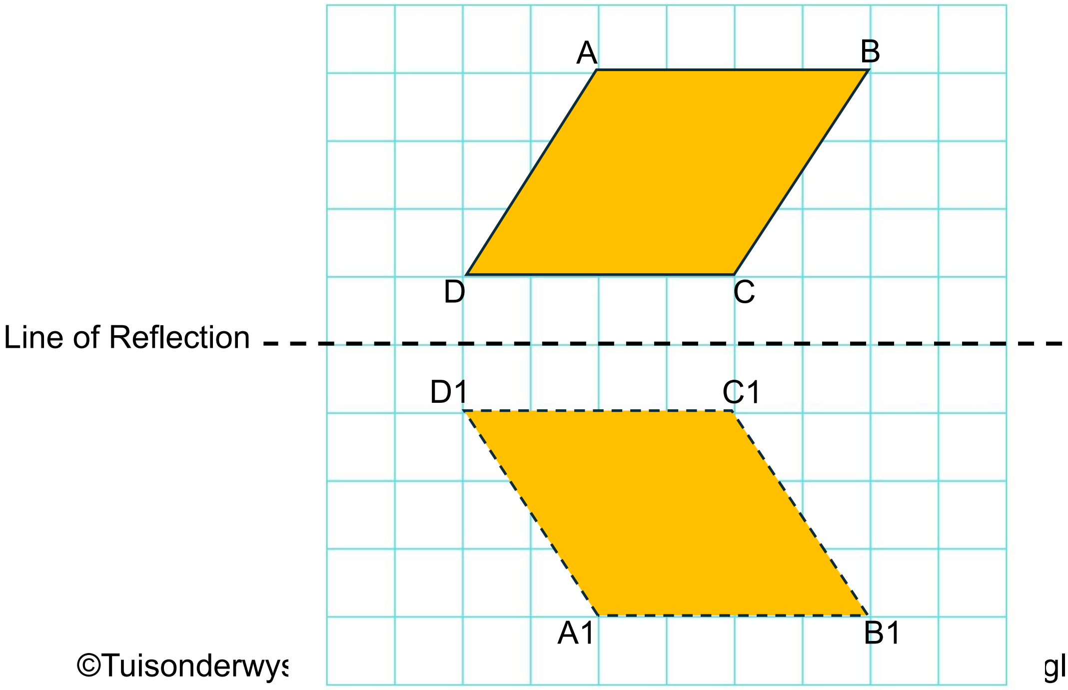
Types of Symmetry – Transformations – Line of Reflection

A line of reflection is a straight line that acts as the "mirror." It flips each point in a shape across this line, creating a corresponding point on the other side.
This transformation is also known as a **flip**.



Line of Reflection

Mirror Image: When you reflect a shape across the line of reflection, every point in the original shape moves an equal distance across the line. The result is a mirror image of the original shape.



Enlargement of 2-D shapes

An **enlargement** is a transformation that makes a shape larger while maintaining its overall shape and proportions.
Every enlargement has a centre point called the " **centre of enlargement** ".

Scale Factor: When we enlarge a shape, we use a scale factor to determine how much larger the new shape will be compared to the original.
For each vertex of the original shape, we multiply its x-coordinate and y-coordinate by the scale factor to find the corresponding vertex in the enlarged shape.

Example: A Parallelogram (ABCD) is Enlarged by a scale factor of 2

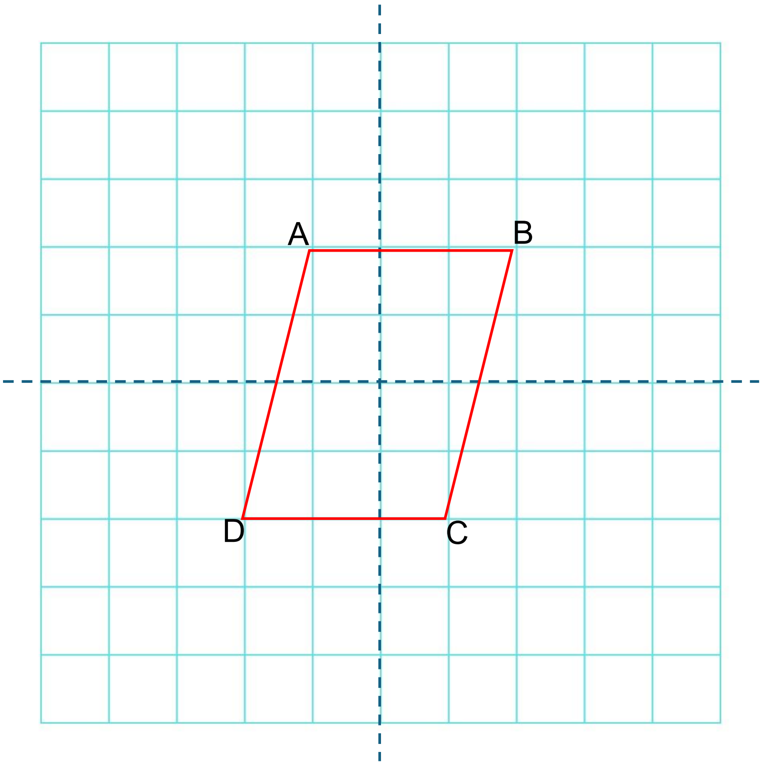
Vertices:

A (-1 , 2)

B (2 , 2)

C (1 , -2)

D (-2 , -2)



Scale Factor

2

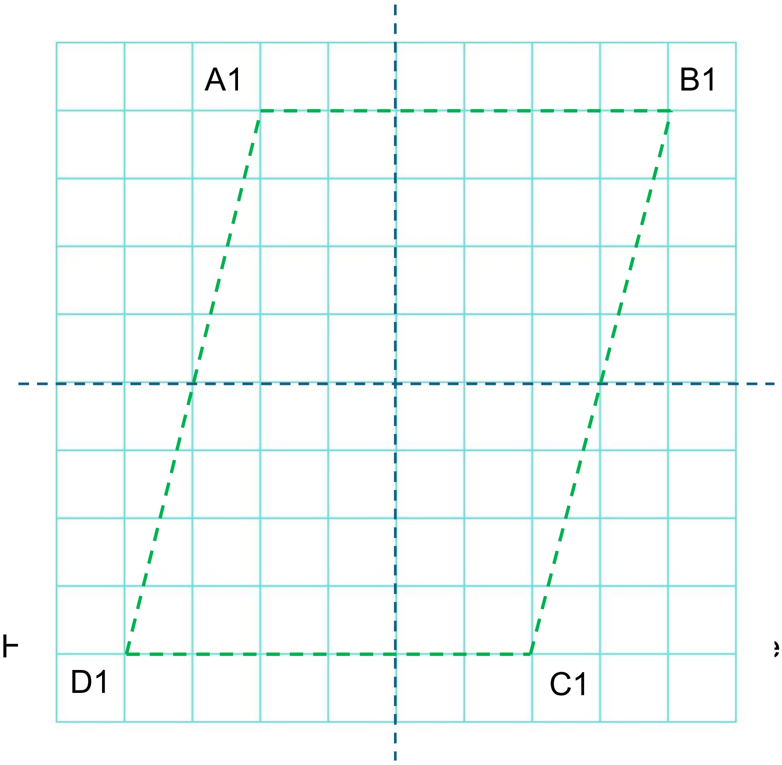
Vertices:

A1 (-2 , 4)

B1 (4 , 4)

C1 (2 , -4)

D1 (-4 , -4)



Reduction of 2-D shapes

A **reduction** is a transformation that makes a shape smaller while preserving its overall shape and proportions. This means that corresponding angles remain equal, and corresponding sides are proportional.

The **scale factor** tells us how much smaller the new shape is compared to the original. If the scale factor is between 0 and 1, the shape gets smaller.
For each vertex of the original shape, we **divide** its x-coordinate and y-coordinate by the scale factor to find the corresponding vertex in the reduced shape.

Like enlargements, reductions also have a centre point called the **centre of reduction**. The shape contracts or shrinks around this centre.

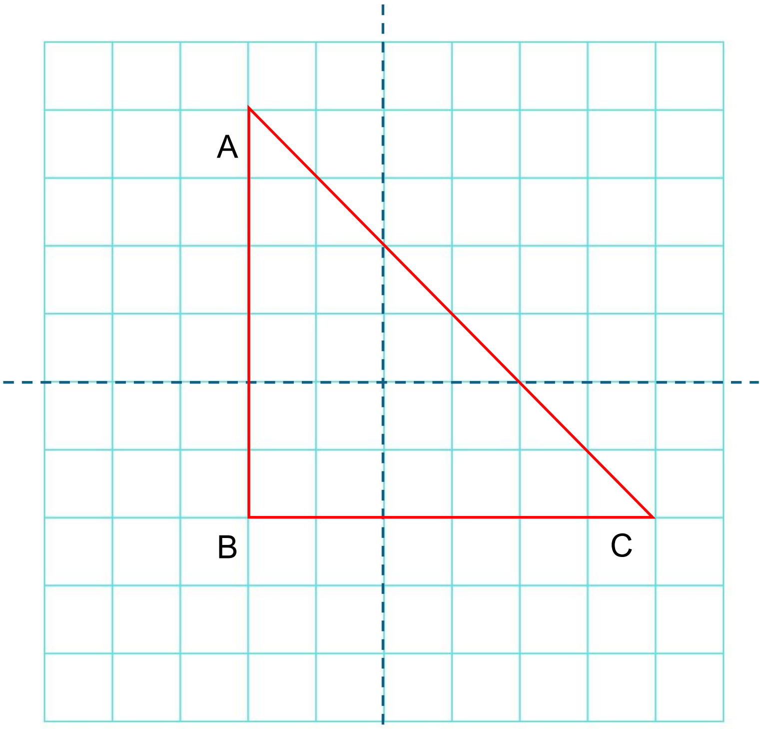
Example: A Triangle (ABC) is reduced by a scale factor of 0.5 (half its size)

Vertices:

A (-2 , 4)

B (-2 , -2)

C (4 , -2)



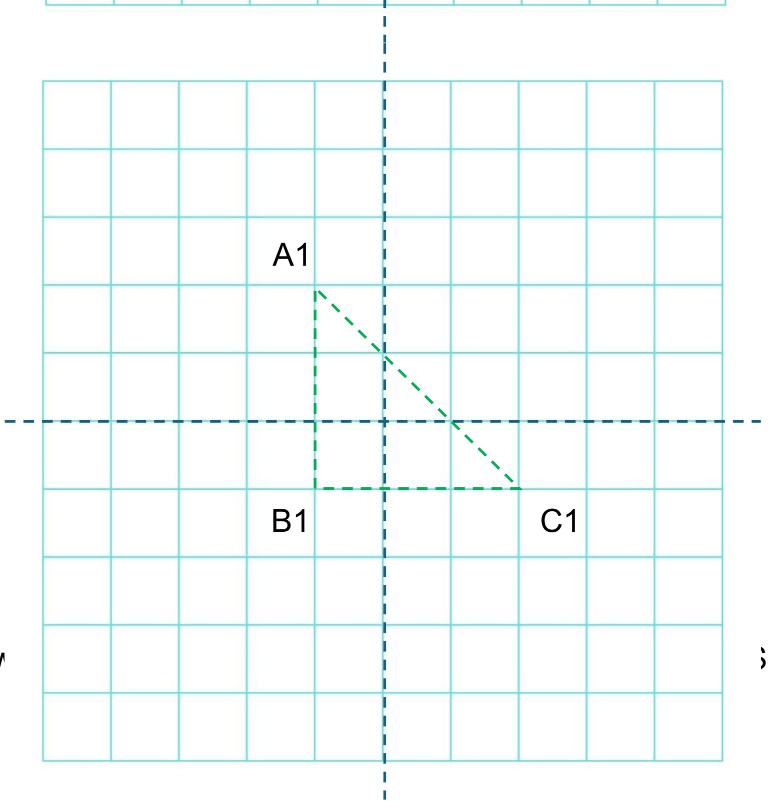
Scale Factor:

0.5 (half)

A1 (-1 , 2)

B1 (-1, -1)

C1 (2, -1)



Patterns

A pattern is like a code that nature, art, and mathematics use to create order and beauty. It's a predictable arrangement of elements that repeats in a specific sequence. Patterns often illustrate mathematical concepts such as sequences, symmetry, algebraic relationships, or geometric properties.

Examples in Nature:

	Butterflies: Their wings often exhibit bilateral symmetry.
	Leaves : Many leaves have a central vein that creates symmetry
	Honeycomb: Hexagons fit together to form a strong structure
	Snowflakes: Intricate hexagonal patterns due to water crystallization

Examples in Modern Everyday Life:

	Tiling Patterns: Bathroom tiles or Shopping Centre floor tiles, often squares or rectangles arranged in repeating patterns.
	Wallpapers: Geometric patterns on wallpapers (chevrons or stripes).

Examples of South African Cultural Heritage:

	Ndebele Art Murals: Ndebele people create colourful geometric murals on their homes. Houses feature vibrant geometric patterns with symmetry.
	Venda Art Patterns: Venda culture features intricate patterns in beadwork and pottery.
	Zulu Beadwork: Zulu beadwork often incorporates symmetrical designs.

Section 4 – Properties of 3D Objects

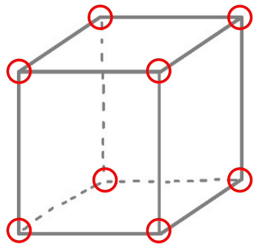
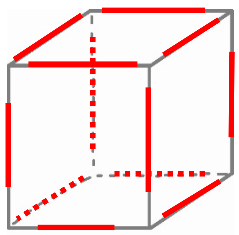
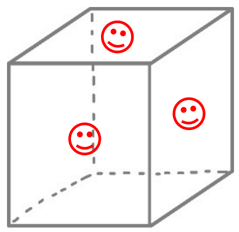
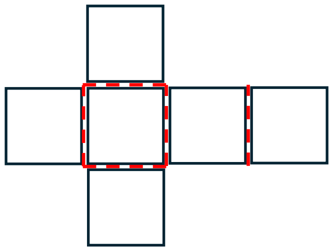
What are 3D objects?

A three-dimensional (3D) object is something that exists in three spatial dimensions: **length, width, and height.** Unlike flat, two-dimensional shapes (like squares or triangles), 3D objects have depth.

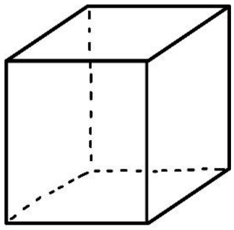
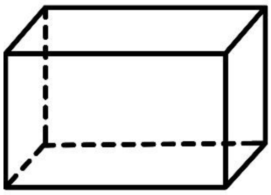
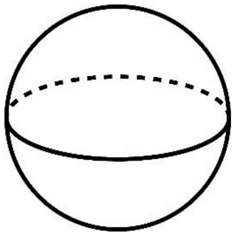
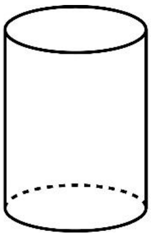
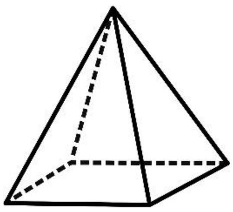
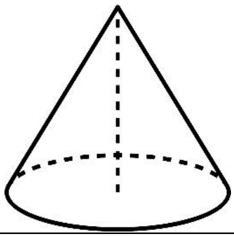
Depth refers to the distance from the top / surface to the bottom of an object.

Depth brings a sense of realism and physicality.
It's what allows you to appreciate the fullness of a sphere, the solidity of a cube, or the curviness of a cone.

Properties of 3D Objects.

	A **vertex** (plural: **vertices**) is a point where three or more edges meet. A cube has 8 vertices.
	An **edge** is the line where two faces of a 3D shape meet. A cube has 12 edges
	A **face** is a flat surface on a 3D shape. A cube has 6 faces
	A shape **net** is a 2D representation that shows how the shape's faces and edges fit together when spread out. A shape net for a cube

Types of 3D objects

	A **Cube** - It's like a box, but all its sides (faces) are equal squares. Edges: 12 Faces: 6 Vertices: 8
	A Rectangular **Prism** - also known as a rectangular cuboid, is a three-dimensional shape that resembles a stretched-out box. Edges: 12 Faces: 6 Vertices: 8
	A **Sphere** - a beautiful three-dimensional shape that is perfectly symmetrical in all directions Edges: 0 Faces: 1 - the entire curved surface Vertices: 0
	A **Cylinder** has 2 circular edges. These edges form the top and bottom circles (bases) Edges: 2 Faces: 3 Vertices: 0
	A Square Base **Pyramid** - The number of edges in a pyramid depends on the type of base it has. Edges: 8 Faces: 5 Vertices: 5
	A **Cone** - It has a circular base and a single curved face that tapers to a point called the apex. Edge: 1 Faces: 2 Vertices: 1

What is a Prism?

A Prism is a **polyhedron** — made up of two parallel faces called **bases**.
These bases are identical polygons (like triangles, squares, rectangles, or any other shape you can imagine). The faces are parallelograms formed by connecting corresponding vertices of the two bases.

What is a Tetrahedron?

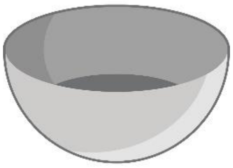
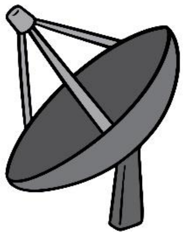
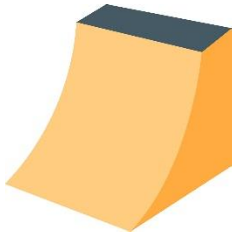
A tetrahedron is like a **triangular pyramid**, and it's one of the simplest three-dimensional shapes. A tetrahedron has 4 vertices (corners), the common point where all three non-base triangles meet is called the **apex**.

What is a Pyramid?

A pyramid is a three-dimensional **polyhedron** that combines a **polygonal base** (like triangles, squares, rectangles, etc) with triangular faces that meet at a single point called the apex (common point vertex).

What is a Concave 3D Object?

An object is concave if the 3D object curves inward**.** (inward dip)
Examples:

Cereal bowl	Satellite-dish	Skate-park ramps
		

What is a Convex 3D Object?

An object is convex if the 3D object curves outward (bulges out).
Examples:

A speed bump	Magnifying glass and camera lenses	A ball
		

Note: A sphere is a perfectly symmetrical object - it's convex because it doesn't have any inward curves.

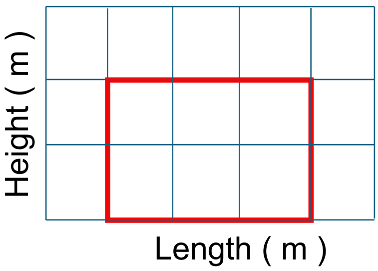
Section 5 – Area, Perimeter and Volume (2D)

What is the measurement of area? (2D shape)

It's all about measuring how much space that object takes up,
We measure area using square **units** like square millimetre (mm^2),
square centimetre (cm^2), square metre (m^2), square kilometre (km^2), etc.
Units matter! If you're measuring in centimetres, your area will be in centimetres.

Example: The surface area of a rectangle (wall of a room)

It's like the teamwork between the length and the height.
When you multiply these two dimensions, you find out how much space the rectangular wall covers.
If your rectangle has a length of 3 metres and a height of 2 metres
How much area in square metres will the rectangle cover?



Area = length (metres) **multiplied by** height (metres)

3 m × 2 m = 6 m^2.

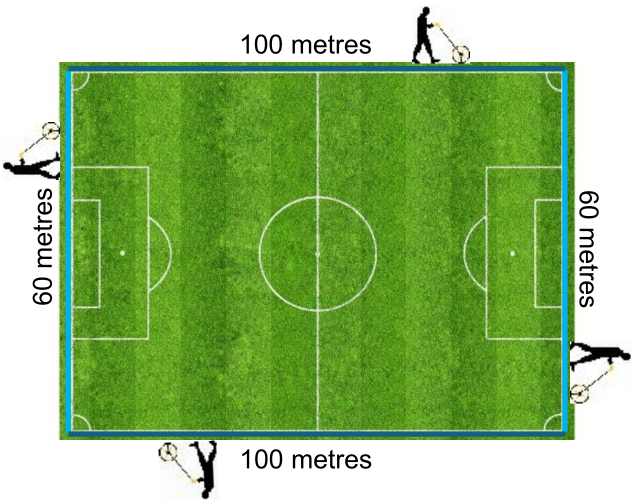
The total surface area of the rectangle is 6 square metres (6 m^2)

What is perimeter?

Perimeter is the sum of all the sides of a polygon, adding up the lengths of those fence-like edges that enclose the shape.
Units matter! If you're measuring in metres, your perimeter will be in metres.

Example: The perimeter of a soccer field in metres (m)

The field is 100 metres long and is 60 metres wide (this makes a rectangle shape)
Two pairs of equal sides: twice the length plus twice the width.



Perimeter of a Rectangle = (2 x Length) + (2 x Width)

= (2 × 100 m) + (2 × 60 m)

= (200 m) + (120 m)

= 320 m

The soccer fields perimeter is 320 metres in total.

The perimeter of a circle (cm)

The perimeter of a circle is equal to the **circumference**. It's like the ultimate hug around the circle, double the radius (that's the distance from the centre to the edge) and multiply it by **Pi** (π = approximately 3.142)

Pi (π) is the ratio of a circle's circumference to its diameter, if you take the distance around the circle (the circumference) and divide it by the distance across the circle (the diameter), you'll get approximately the same number, about 3.14159…
pi's true value extends infinitely.

Example: What is approximate perimeter of a soccer ball with the radius of 11 cm?

Circumference = twice the radius × pi
of a circle

= 2 (11 cm) × π

= 22 cm × π

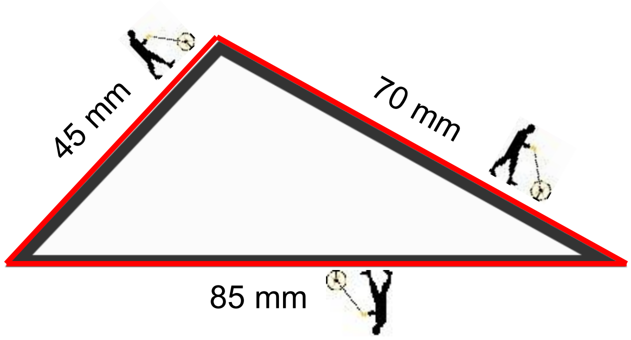
= 69,11 cm

The soccer ball circumference is approximately 69,11 cm

The perimeter of a triangle (mm)

The perimeter of a triangle is the sum of all its sides. It's the total length of the edges that form the triangle. Whether it's an equilateral triangle (with three equal sides), an isosceles triangle (with two equal sides), or a scalene triangle (with no equal sides), we add up all those lengths to find the perimeter.

Example: The total perimeter of the scalene triangle in mm



Perimeter of a triangle = Length + Length + Length

= 45 mm + 85 mm + 70 mm

= 200 mm

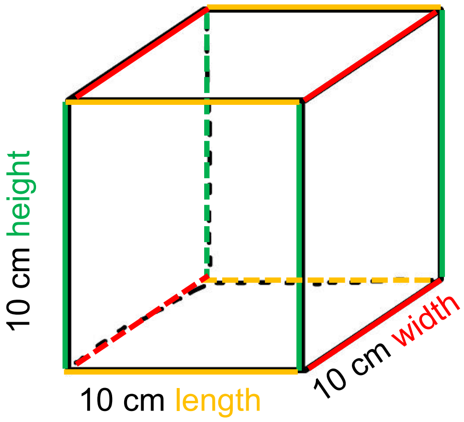
The total perimeter is of the triangle is 200 mm

What is Volume?

Volume is the space enclosed within the boundaries of a three-dimensional object. It's the **capacity** of that shape/object, we measure volume in cubic units. Whether it's cubic centimetres (cm^3) or cubic meters (m^3), we're talking about how many little cubes (each with sides of 1 unit length) fit inside the object. So, whether it's a cereal box, a fish tank, or a planet, volume helps us understand how much space things take up.

Example: What is the volume within a perfect cube that is 10 cm tall?

Note: A perfect cube – all sides and angles are equal to one another, therefor the length, height and the width are all the same value in measurement.



Volume of a perfect square = Length × Width × Height

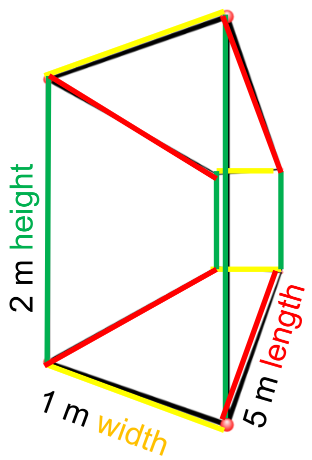
= 10 cm × 10 cm × 10 cm

= 1 000 cm^3

The total volume of the cube is 1 000 cm^3

Another Example: The total volume within a rectangular prism container in metres?

The container measures 5 meters in length, 2 meters in height, and 1 meter in width



Volume = Length × Width × Height

= 5 m × 1 m × 2 m

= 10 m^3

The total volume of the rectangular prism container is 10 m^3