

Understanding Elementary Shapes

Line segment :

- A line segment is a part of a line between two end points
- The distance between the end points of a line segment is its length.
- The graduated ruler and the divider are used to measure and compare lengths of line segments

Angle:

- An angle is formed when two rays meet at a point
- A Protractor is used to measure the size of an angle in degrees
- Movement of the hand of a clock from one position to another position is an example for an angle

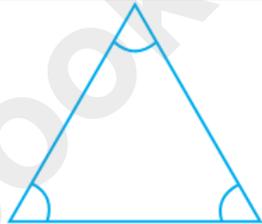
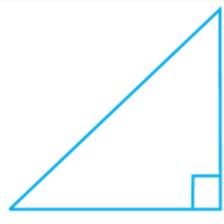
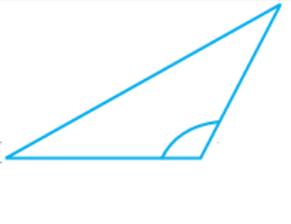
- One full turn of the hand is 1 revolution corresponding to 360° or a complete angle
- A right angle is $\frac{1}{4}$ th a revolution and a straight angle is $\frac{1}{2}$ a revolution

Name of the angle	Measure
Acute	smaller than that of a right angle
Obtuse	greater than that of a right angle and less than a straight angle
Right	equals 90°
straight angle	equals 180°
reflex angle	larger than a straight angle but less than 360°

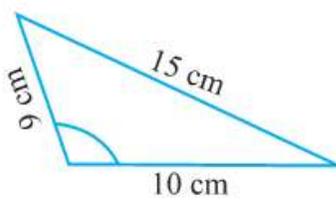
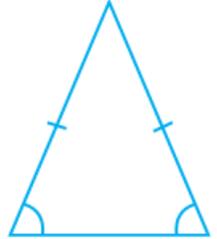
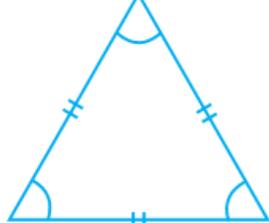
- Two intersecting lines are perpendicular if the angle between them is

Classification of Triangles :

Based on the nature of the angles

Acute angled triangle	Right angled triangle	Obtuse angled triangle
All three angles are acute	One angle is a right angle and the other two are acute	One angle is an obtuse angle and other two are acute
		

Based on the measures of its sides

Scalene triangle	Isosceles triangle	Equilateral triangle
All the three sides are of unequal length	Any two of the sides are of equal length	All the three sides are of equal length
		

- An equilateral triangle is also called as an equiangular triangle as each angle measures 60°

90°

- The perpendicular bisector of a line segment is a perpendicular to the line segment and also divides it into two equal parts.

- The side opposite to the right angle in a right angled triangle is the longest side and is called as the hypotenuse

Classification of Quadrilaterals:

Property	Name of the Quadrilateral
One pair of parallel sides	Trapezium
Two pairs of parallel sides	Parallelogram
Parallelogram with 4 right angles	Rectangle
Parallelogram with 4 sides of equal length	Rhombus
A rhombus with 4 right angles	Square

- In a parallelogram, diagonals bisect each other and opposite angles are equal and parallel
- In a rhombus, diagonals are perpendicular bisectors of each other
- Diagonals are equal in a square and a rectangle

Polygons

- Are closed figures bounded by line segments
- Are classified based on their sides

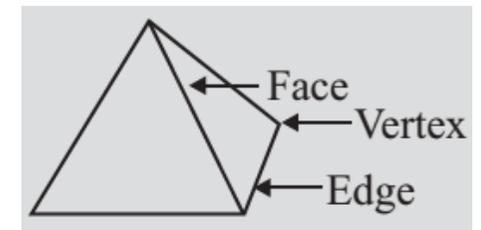
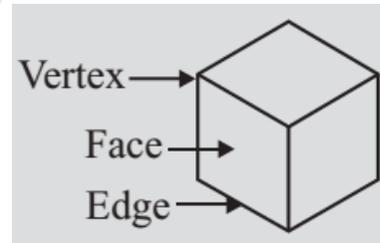
Number of sides	Name of the Polygon
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon
8	Octagon
9	Nonagon
10	Decagon

3-dimensional or 3-D shapes

These are solid objects that occupy space and have length, breadth and height (depth): cube, cuboid, cone, sphere, prism, pyramid etc

Faces, Edges and Vertices

- Many three dimensional shapes have flat surfaces called faces
- Two faces meet at a line segment called an edge
- Three edges meet at a point called a vertex



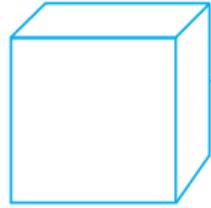
- The cylinder, the cone and the sphere have no straight edges
- The base of a cone is a circle
- The cylinder has two bases that are circular
- A sphere has no flat faces

Different 3-D shapes

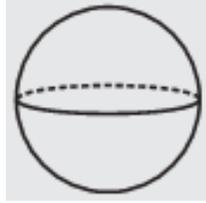
Cuboid



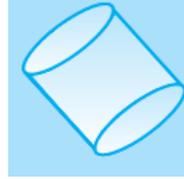
Cube



Sphere



Cylinder



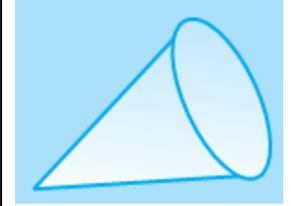
Pentagonal prism



pyramid



Cone



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