GEOMETRY- FUNDAMENTAL CONCEPTS

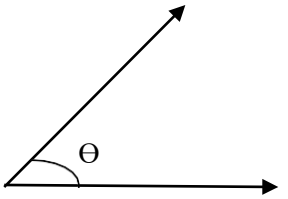
- **A point** is a mark of position, it is neither length nor width nor thickness. So it occupies no space.

- **A line** has only length. It has neither width nor thickness. It has infinite length.

- **A line segment** is a part of a line whose both ends are fixed. It has definite length.

- **A ray** is a part of a line whose one end is fixed and the other end can be extended infinitely.

- **A plane** is a flat surface. It has length and width, but no thickness.
- **The space** is made up of everything which exists in the universe.Every surface etc is a part of space.
- **An angle** is formned when two line segments or two rays have common end point



TYPES OF ANGLES

- **Acute Angle:** $0^0 < \theta \leq 90^0$
- **Right Angle:** $\theta = 90^0$
- **Obtuse Angle:** $90^0 < \theta \leq 180^0$
- **Straight Angle:** $\theta = 180^0$
- **Reflex Angle:** $180^0 < \theta \leq 360^0$

- **Angles at a point:** Sum of the angles formed at point is equal to 360 degrees
- **Angles on same side of straight line:** Sum of such angles is equal to 180 degrees
- **Adjacent angles:** Two angles are said to be adjacent with common arm and common vertex
- **Vertically opposite angles(V.O.A):** When two lines intersect four angles formed, pair of angles which lie on opposite sides of point of intersection are V.O.A
- **Complementary angles:** Two angles are said to be complementary if their sum is one right angle (90 degrees). Each angle is complementary of other
- **Suppplementary angles:** Two angles are said to be supplementary if their sum is two right angle (180 degrees) Each angle is called supplementary of other

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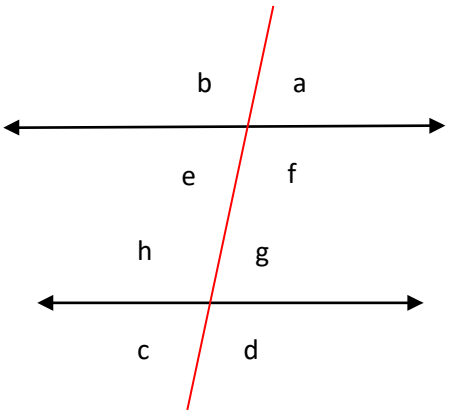
Parallel lines are straight lines which are coplanar and don not intersect each other even when produced on both sides.

Transversal is a straight line that cuts two or more co planar lines.



Condition for parallelism

- **Alternate angles are equal or**
  $\boldsymbol{Interior}: < e =< g\ ; < f =< h\ and$
  $\boldsymbol{Exterior}: < b =< d; < a =< c$
- **Corresponding angles are equal or**
  $< a =< g\ ; < b =< h; < f =< d; < e =< c$
- **Co interior angles are supplementary**
  $< e + < f = \mathbf{180^0}; < h + < g = \mathbf{180^0};$