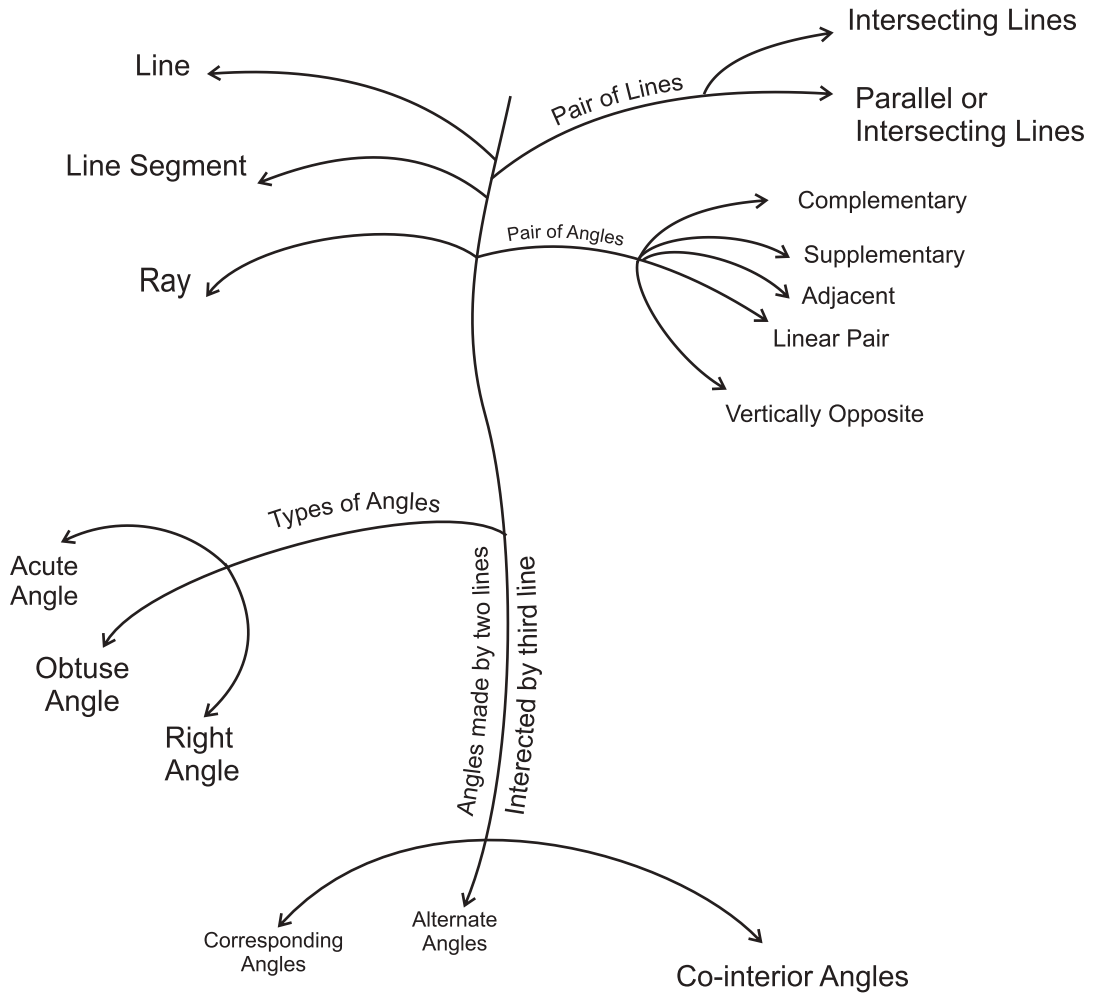


## CHAPTER-6 LINES & ANGLES MIND MAP



## CHAPTER-6

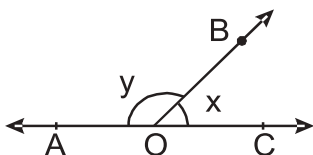
# LINES AND ANGLES

---

---

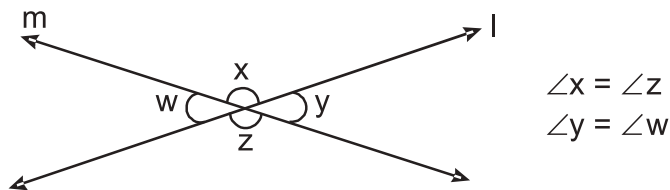
### KEY POINTS

- Line is a collection of points which has only length neither breadth nor thickness.
- **Line Segment** : A part or portion of a line with two end points.
- **Ray** : A part of a line with one end point.
- **Collinear points** : Three or more points lying on the same line.
- **Angle** : An angle is formed when two rays originate from the same end point. The rays making an angle are called the arms and the end point is the vertex.
- **Acute angle** : An angle measure between  $0^\circ$  and  $90^\circ$
- **Right angle** : Angle exactly equal to  $90^\circ$
- **Obtuse angle** : An angle greater than  $90^\circ$  but less than  $180^\circ$
- **Straight angle** : An angle exactly equal to  $180^\circ$
- **Reflex Angle** : An angle greater than  $180^\circ$  but less than  $360^\circ$
- **Complimentary Angles** : A pair of angles whose sum is  $90^\circ$
- **Supplementary angle** : A pair of angles whose sum is  $180^\circ$
- **Complete Angle** : An angle whose measure is  $360^\circ$ .
- **Adjacent angles** : Two angles are adjacent if
  - (i) They have a common vertex.
  - (ii) a common arm
  - (iii) Their non common arms are on opposite sides of common arm.
- **Linear pair of angle** : A pair of adjacent angles whose sum is  $180^\circ$



$\angle AOB$  &  $\angle COB$  are forming linear pair.

- **Vertically opposite angles** : Angles formed by two intersecting lines on opposite side of the point of intersection.



- **Intersecting lines**: Two lines are said to be intersecting when the perpendicular distance between the two lines is not same every where. They meet at one point.
- **Non intersecting lines** : Two lines are said to be non-intersecting lines when the perpendicular distance between them is same every where. They do not meet. If these lines are in the same plane these are known as **Parallel lines**.
- **Transversal line** : In the given figure  $l \parallel m$  and  $t$  is transversal then

(a)	$\left. \begin{aligned} \angle 1 &= \angle 3 \\ \angle 2 &= \angle 4 \\ \angle 5 &= \angle 7 \\ \angle 6 &= \angle 8 \end{aligned} \right\}$	Vertically opposite angle
(b)	$\left. \begin{aligned} \angle 1 &= \angle 5 \\ \angle 2 &= \angle 6 \\ \angle 3 &= \angle 7 \\ \angle 4 &= \angle 8 \end{aligned} \right\}$	Corresponding angle
(c)	$\left. \begin{aligned} \angle 3 &= \angle 5 \\ \angle 4 &= \angle 6 \end{aligned} \right\}$	Alternate Interior angle
(d)	$\left. \begin{aligned} \angle 3 + \angle 6 &= 180^\circ \\ \angle 4 + \angle 5 &= 180^\circ \end{aligned} \right\}$	Angles on the same sides of a transversal are supplementary.

$\angle 3, \angle 6$  and  $\angle 4, \angle 5$  are called co-interior angles or allied angles or consecutive interior angles.

- Sum of all interior angles of a triangle is  $180^\circ$ .
- Two lines which are parallel to the third line are also parallel to each other.