

CDS 1 2025

MATHS

LIVE 

GEOMETRY

CLASS 1



NAVJYOTI SIR





5 Nov 2024 Live Classes Schedule

8:00AM -- 05 NOVEMBER 2024 DAILY CURRENT AFFAIRS RUBY MA'AM

9:00AM -- 05 NOVEMBER 2024 DAILY DEFENCE UPDATES DIVYANSHU SIR

SSB INTERVIEW LIVE CLASSES

9:30AM -- OVERVIEW OF GD & LECTURETTE ANURADHA MA'AM

NDA 1 2025 LIVE CLASSES

11:30AM -- GK - MEDIEVAL HISTORY - CLASS 1 RUBY MA'AM

1:00PM -- CHEMISTRY MCQ - CLASS 3 SHIVANGI MA'AM

4:00PM -- MATHS - VECTOR ALGEBRA - CLASS 2 NAVJYOTI SIR

5:30PM -- ENGLISH - ORDERING OF WORDS - CLASS 2 ANURADHA MA'AM

CDS 1 2025 LIVE CLASSES

11:30AM -- GK - MEDIEVAL HISTORY - CLASS 1 RUBY MA'AM

1:00PM -- CHEMISTRY MCQ - CLASS 3 SHIVANGI MA'AM

5:30PM -- ENGLISH - ORDERING OF WORDS - CLASS 2 ANURADHA MA'AM

✓ 7:00PM -- MATHS - GEOMETRY - CLASS 1 NAVJYOTI SIR

AFCAT 1 2025 LIVE CLASSES

4:00PM -- STATIC GK - COUNTRY CAPITAL CURRENCY - CLASS 1 DIVYANSHU SIR

5:30PM -- ENGLISH - ORDERING OF WORDS - CLASS 2 ANURADHA MA'AM



POINT

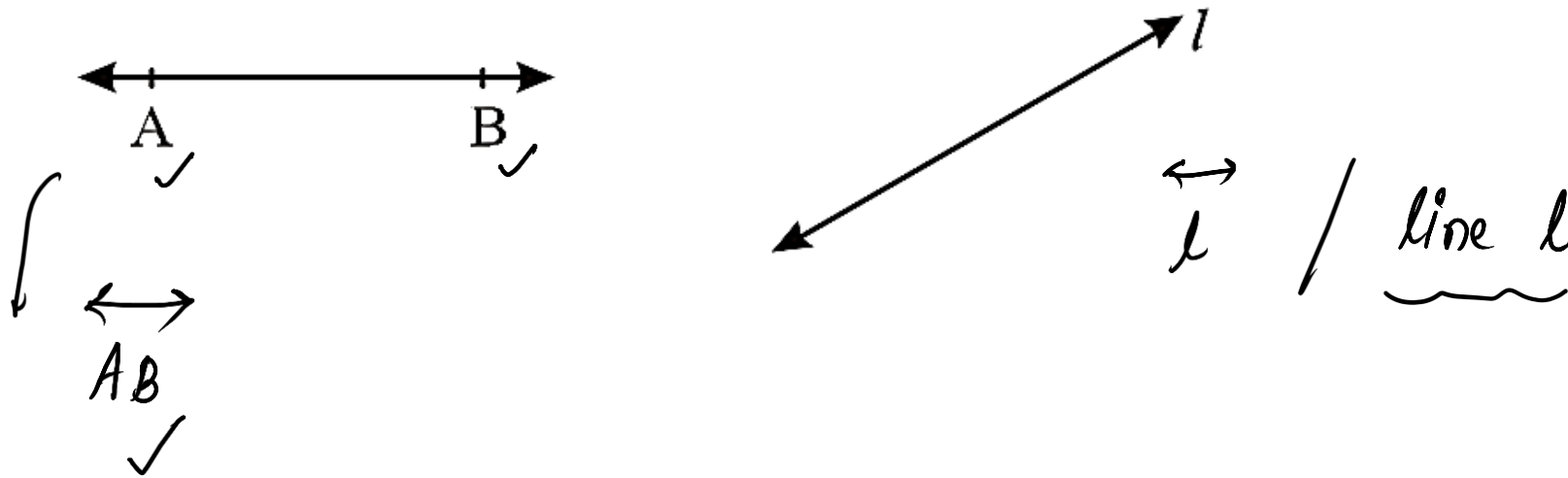
•
A

•
C

→ capital letters are used to name a point.

LINE

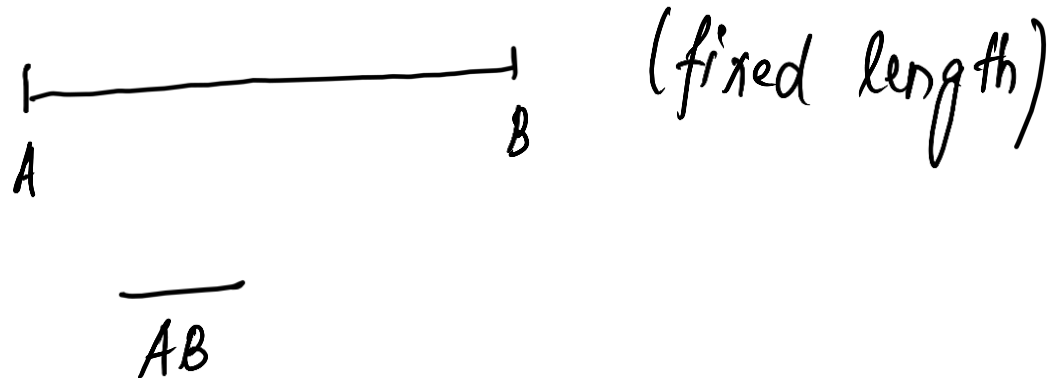
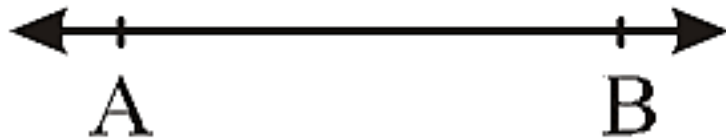
A line is defined as a group of points. Which are straight one after another. Each line is extended infinitely in two directions.



LINE SEGMENT

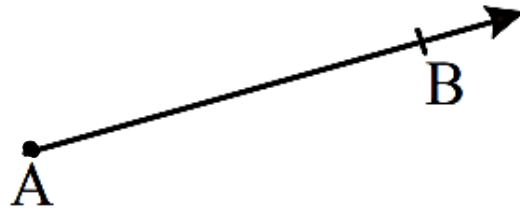
If a part of the line is cut out, then this cut out piece of the line is called a line segment. A line segment has no arrow at its any end.

This means that no line segment is extended infinitely in any direction.



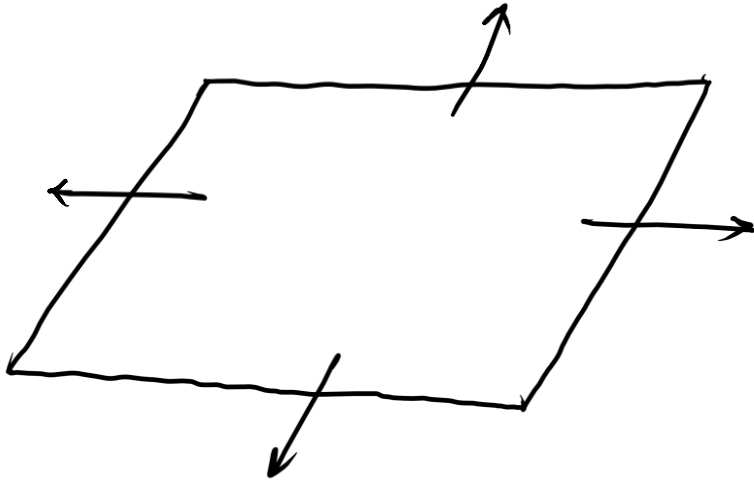
RAY

A ray is a part of a line extended infinitely in any one direction only. Example:

 \overrightarrow{AB}

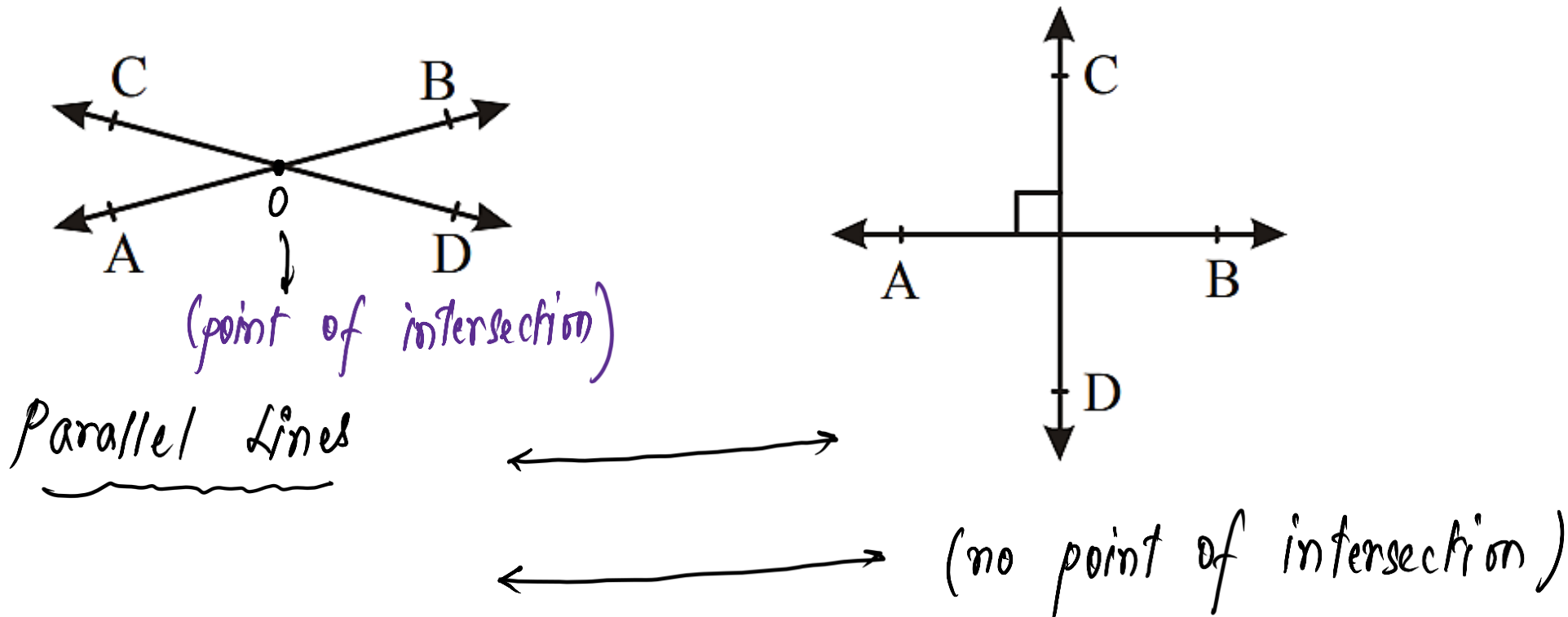
PLANE

It is a flat surface extended infinitely. It has only length and breadth but no thickness. Surface of a black board, surface of a wall, surface of a table are some examples of parts of planes because they are flat surfaces but not extended infinitely.



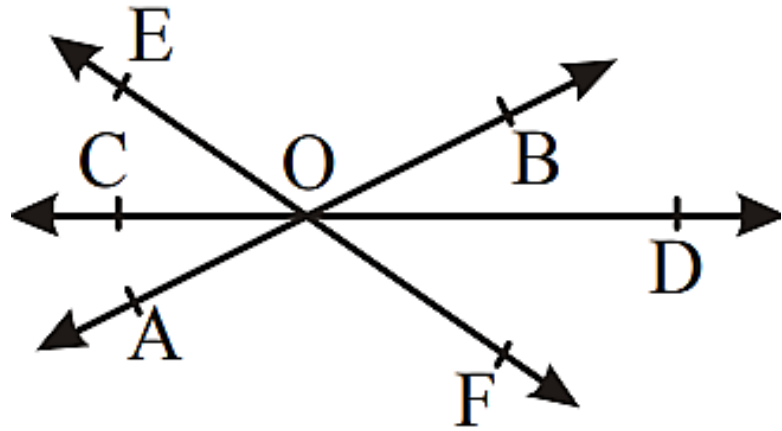
INTERSECTING LINE

If two or more lines intersect each other, then they are called intersecting lines. In the figure AB and CD are intersecting lines.



CONCURRENT LINE

If three or more lines pass through a point, then they are called concurrent lines and the point through which these all lines pass is called point of concurrent Ce .

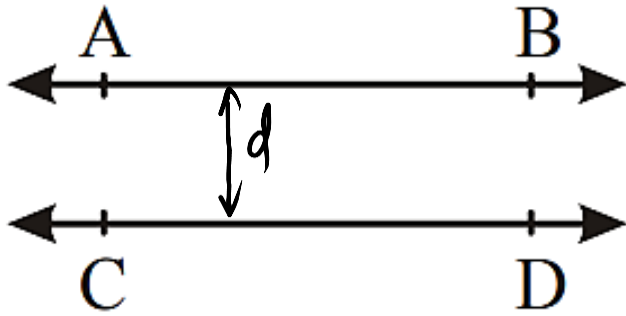


(3 or more than 3 lines have a common point of intersection)

PARALLEL LINES

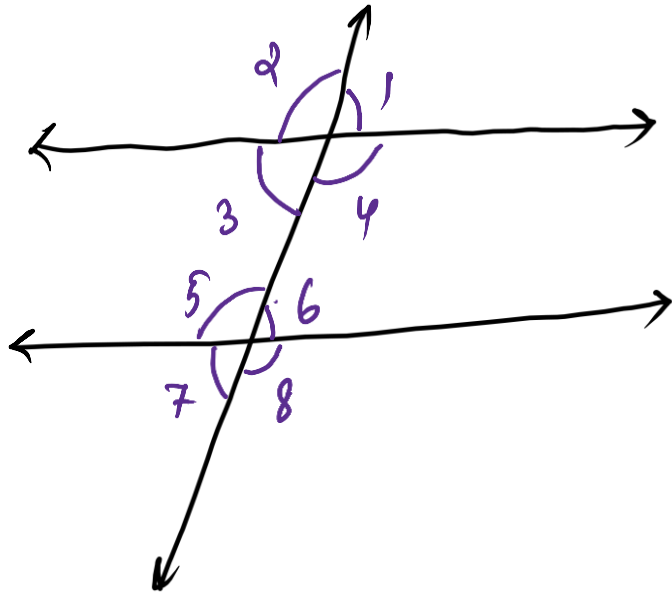
Two straight lines are parallel if they lie in the same plane and do not intersect even if they produced.

Perpendicular distances between two parallel lines are the same at all places.



TRANSVERSAL LINE

A line which intersects two or more given lines at distinct points is called a transversal of the given lines.



$$\angle 1 = \angle 6$$

$$\angle 2 = \angle 5$$

$$\angle 3 = \angle 7$$

$$\angle 4 = \angle 8$$

} corresponding angles

$$\angle 3 = \angle 6$$

$$\angle 4 = \angle 5$$

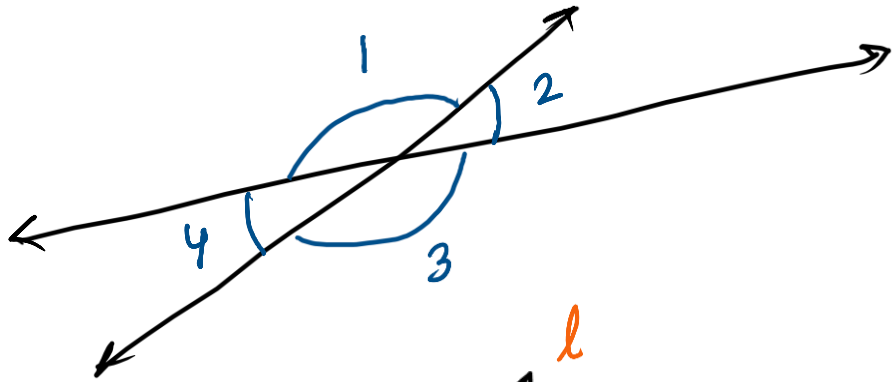
} alternate

} interior angles

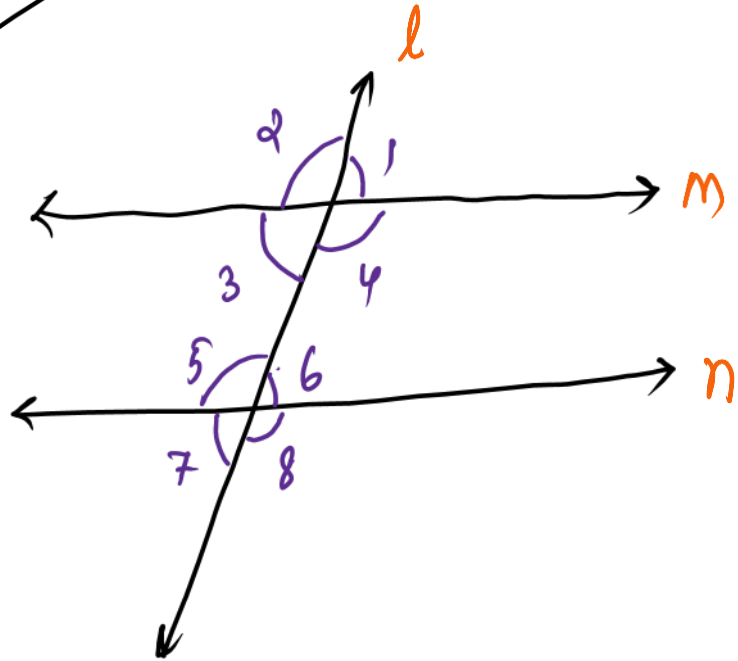
$$\angle 3 + \angle 5 = 180^\circ$$

$$\angle 4 + \angle 6 = 180^\circ$$

angles on the same side of transversal



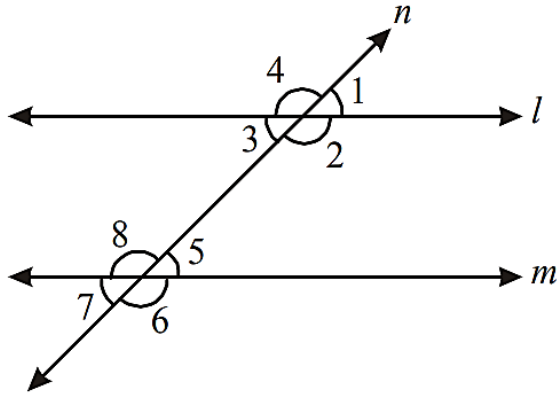
$\angle 1 = \angle 3$
 $\angle 2 = \angle 4$ } vertically opposite angles



l intersecting m ,
 $\angle 2 = \angle 4$; $\angle 1 = \angle 3$

l intersecting n ,
 $\angle 5 = \angle 8$; $\angle 6 = \angle 7$

PARALLEL TRANSVERSAL LINE

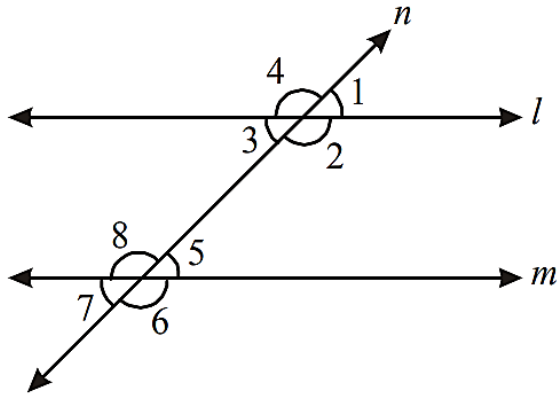


Two angles of each pair of corresponding angles are equal
i.e. $\angle 1 = \angle 5$; $\angle 2 = \angle 6$; $\angle 4 = \angle 8$; $\angle 3 = \angle 7$

Two angles of each pair of alternate interior angles are equal i.e.

$$\angle 2 = \angle 8; \angle 3 = \angle 5$$

PARALLEL TRANSVERSAL LINE



Two angles of each pair of alternate exterior angles are equal i.e.

$$\angle 1 = \angle 7; \angle 4 = \angle 6$$

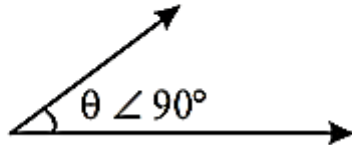
Any two consecutive interior angles are supplementary. i.e. their sum is 180° . Hence

$$\angle 2 + \angle 5 = 180^\circ; \angle 5 + \angle 8 = 180^\circ; \angle 8 + \angle 3 = 180^\circ;$$

$$\angle 3 + \angle 2 = 180^\circ$$

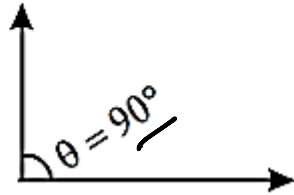
ANGLE

Acute angle: An angle is said to be acute angle if it is less than 90° . ✓



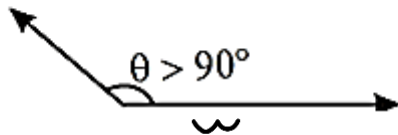
Here $0^\circ < \theta < 90^\circ$, hence θ is acute angle.

Right angle: An angle is said to be right angle if it is of 90° .



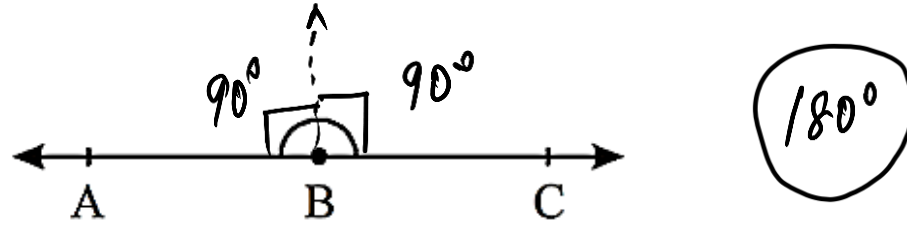
Here θ is right angle.

Obtuse angle: An angle is said to be obtuse angle if it is of more than 90° .



ANGLE

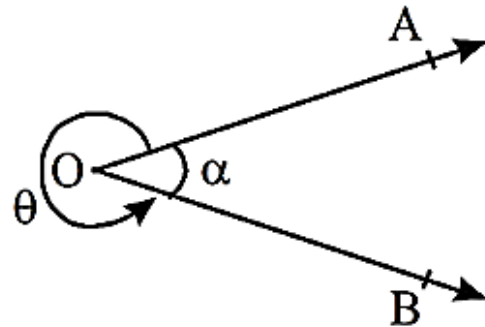
Straight angle: An angle is said to be straight angle if it is of 180° .



Here θ is a straight angle.

Reflex angle: An angle is said to be reflex angle if it is of greater than 180° .

$$\underline{180^\circ} < \theta < \underline{360^\circ}$$

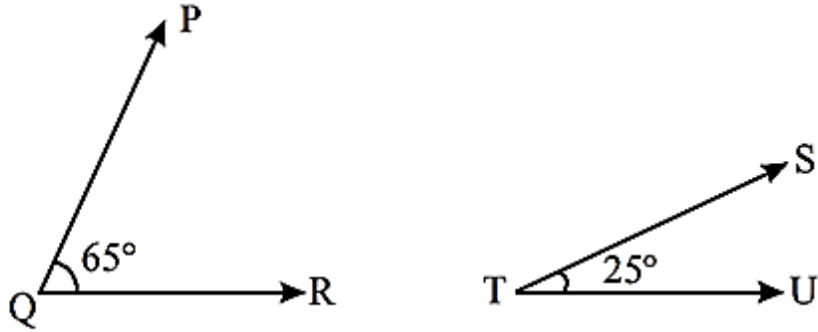


complete angle :
✓

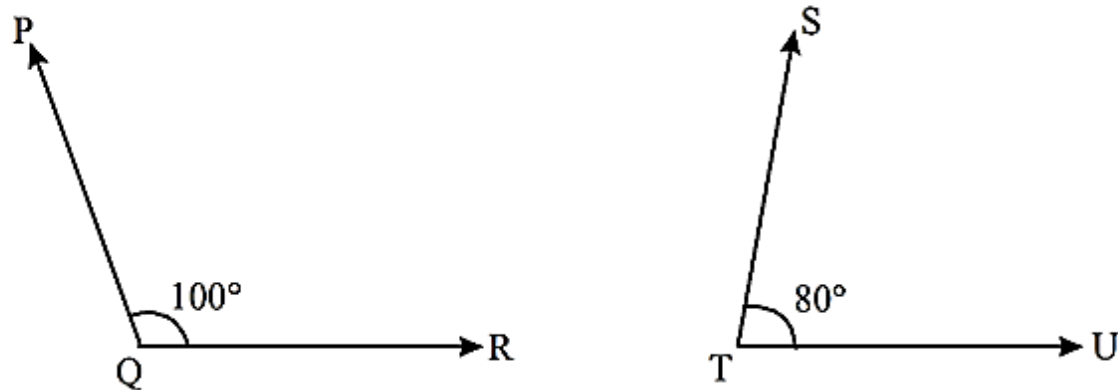


ANGLE

Complementary angles: Two angles, the sum of whose measures is 90° , are called the complementary angles.

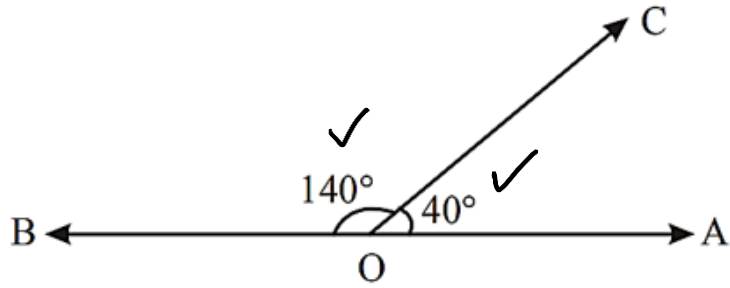


Supplementary angles: Two angles, the sum of whose measures is 180° , are called the supplementary angles.



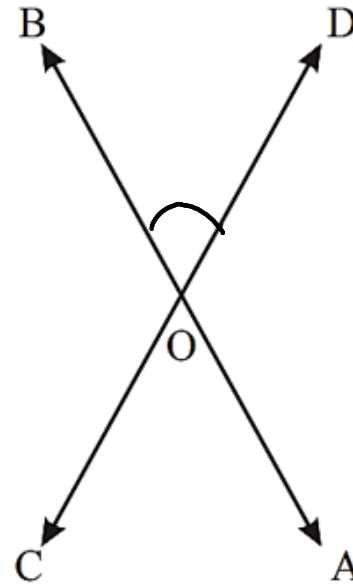
ANGLE

Linear pair of angles:



sum has to be 180° ,
(supplementary)

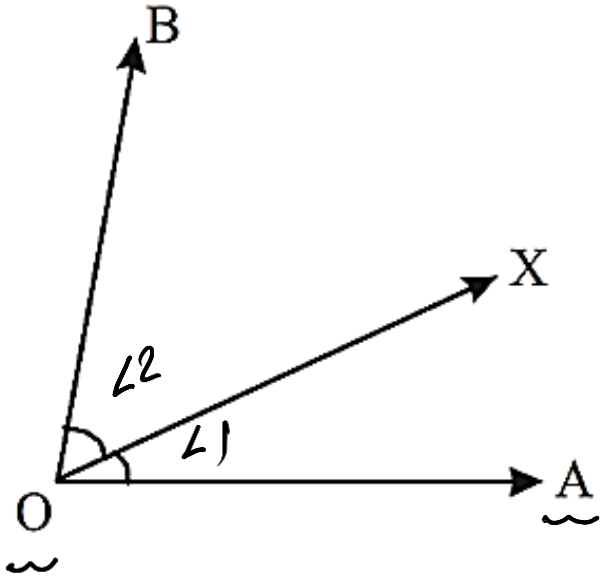
Vertically opposite angles:



ADJACENT ANGLE

Adjacent angles: Two angles are called adjacent angles, if

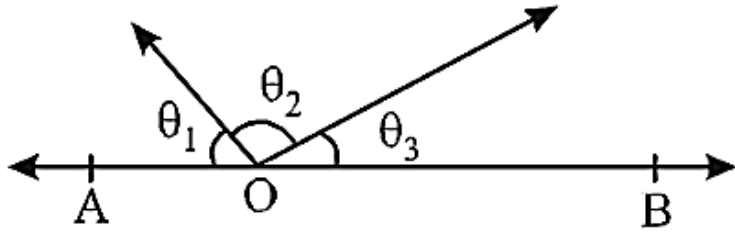
- (i) they have the same vertex
- (ii) they have a common arm and
- (iii) non-common arms are on either side of the common arm



$\angle 1$ and $\angle 2$ are adjacent angles

ANGLE

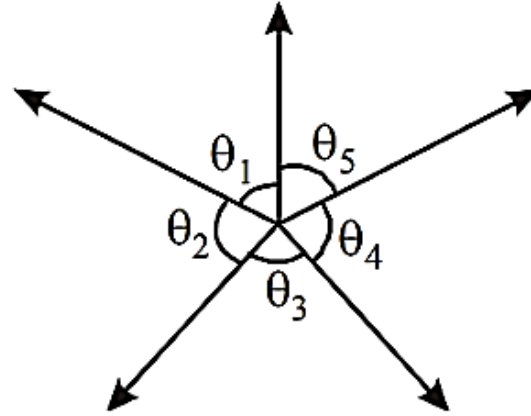
Angles on one side of a line at a point on the line:



$$\theta_1 + \theta_2 + \theta_3 = 180^\circ. \quad \checkmark$$

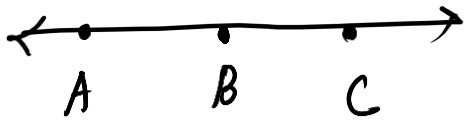
Angle around a point:

$$\theta_1 + \theta_2 + \theta_3 + \theta_4 + \theta_5 = 360^\circ \quad \checkmark$$

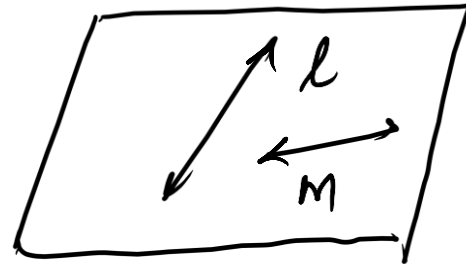


PROPERTIES

- Three or more points are said to be collinear if they lie on a line, otherwise they are said to be non-collinear.
- Two or more lines are said to be coplanar if they lie in the same plane, otherwise they are said to be non-coplanar.
- A line, which intersects two or more given coplanar lines in distinct points, is called a transversal of the given lines.



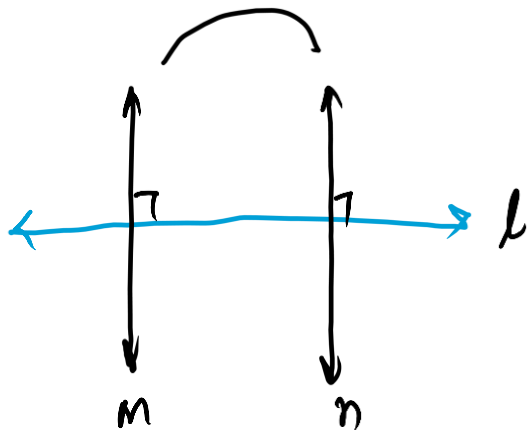
(A, B and C are collinear points)



l and m are coplanar.

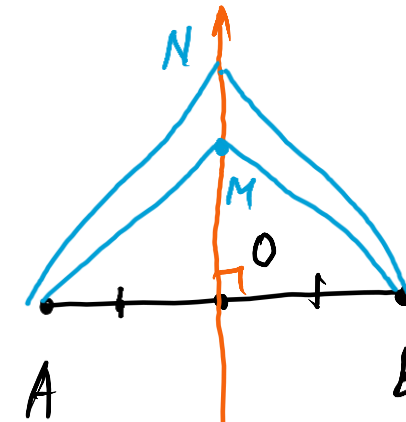
PROPERTIES

- A line which is perpendicular to a line segment, i.e., intersect at 90° and passes through the mid point of the segment is called the perpendicular bisector of the segment.
- Every point on the perpendicular bisector of a segment is equidistant from the two endpoints of the segment.
- If two lines are perpendicular to the same line, they are parallel to each other.
- Lines which are parallel to the same line are parallel to each other.



$$l \perp m ; l \perp n,$$

$$\underline{m \parallel n}$$



$$\underline{AM = BM}$$

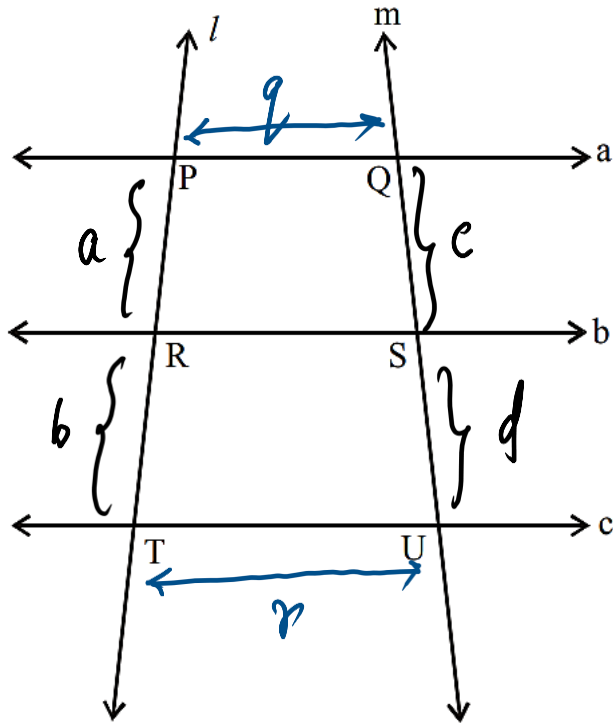
$$\underline{AN = BN}$$

perpendicular
bisector of AB.

PROPORTIONALITY THEOREM

If line $a \parallel b \parallel c$, and lines l and m are two transversals, then

$$\frac{PR}{RT} = \frac{QS}{SU}$$



$$\frac{a}{b} = \frac{c}{d}$$

$$RS = \frac{bg + ra}{b + a} = \frac{rc + gd}{c + d}$$

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