

O.P.JINDAL SCHOOL SAVITRI NAGAR

Class: IX

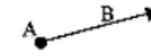
Worksheet (2020-21)

Subject: Maths

Topic: Lines and Angles

Basic terms and Definitions

1. **Point** - A Point is that which has no component. It is represented by a dot.
2. **Line** - When we join two distinct points then we get a line. A line has no endpoints it can be extended infinitely.
3. **Line Segment** - It is the part of the line which has two endpoints.
4. **Ray** - Ray is also a part of the line which has only one endpoint and has no end on the other side.

Term	Dimensions	Graphic	Symbol
Point	Zero		$\cdot A$
Line Segment	One		\overline{AB}
Ray	One		\overrightarrow{AB}
Line	One		\overleftrightarrow{AB}

5. **Collinear and Non-collinear points** – Points lie on the same line are known as collinear points and the points that don't lie on the same line are known as **Non-Collinear Points**.



Angles

When two rays begin from the same endpoint then they form an **Angle**. The two rays are the arms of the angle and the endpoint is the vertex of the angle.

Types of Angles

Angle	Notation	Image
Acute	An angle which is between 0° and 90° .	
Right	An angle which is exactly equal to 90° .	
Obtuse	An angle which is between 90° and 180° .	
Reflex	An angle which is between 180° and 360° .	
Straight	An angle which is exactly equal to 180° .	
Complete	An angle which is exactly equal to 360° .	

Complementary and Supplementary Angles

Complementary Angles are those which have the sum of two angles as 90° .

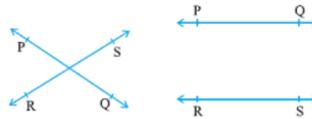
Supplementary Angles are those which have the sum of two angles as 180° .

Relation between two Angles

Angles	Relation	Image
Adjacent Angles	If two angles have the same vertex and their one of the arm is common then these are called adjacent angles.	
Linear pair of Angles	If two angles have the same vertex and one common arm but the arms which are not common are making a line then these are called the linear pair of angles.	
Vertically opposite Angles	If two lines intersect each other at a point then the opposite angles are vertically opposite angles.	

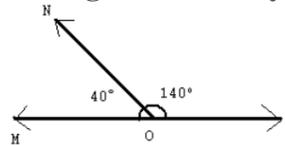
Intersecting Lines and Non-intersecting Line:

1. The lines which cross each other from a particular point are called **Intersecting Lines**.
2. The lines which never cross each other at any point are called **Non-intersecting Lines**. These lines are called **Parallel Lines** and the common length between two lines is the distance between parallel lines.



Pairs of Angles Axioms

1. If a ray stands on a line, then the sum of two adjacent angles formed by that ray is 180° .

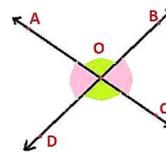


This shows that the common arm of the two angles is the ray which is standing on a line and the two adjacent angles are the linear pair of the angles. As the sum of two angles is 180° so these are supplementary angles too.

2. If the sum of two adjacent angles is 180° , then the arms which are not common of the angles form a line. This is the reverse of the first axiom which says that the opposite is also true.

Vertically opposite Angles Theorem

When two lines intersect each other, then the vertically opposite angles so formed will be equal.



AC and BD are intersecting each other so $\angle AOD = \angle BOC$ and $\angle AOB = \angle DOC$.

NOTE: This sheet is prepared from home.