



**BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034**

**SUBJECT- MATHEMATICS**

**CLASS IX**

**LINES AND ANGLES (Part – 1)**

**GUIDELINES:**

Dear Students

Kindly read the content given below and view the links shared for better understanding.

- Solve the given questions in the yellow register provided in the notebook set.
- Make index in the beginning with following columns-S.no, Topic,Date,Signature.
- If you couldn't buy the notebook set, you can do the work in some new notebook or old maths notebook of class VIII till school re-opens.

**Link for the chapter:-** <http://ncert.nic.in/textbook/pdf/iemh106.pdf>

**INTRODUCTION**

You have studied that a minimum of two points are required to draw a line. In this chapter, you will study the properties of the angles formed

- When two lines intersect each other.
- When a line intersects two or more parallel lines at distinct points.

If a ray stands on a line, then the sum of two adjacent angles so formed is  $180^\circ$ .

If two lines intersect each other then the vertically opposite angles are equal.

If a transversal intersects two parallel lines, then each pair of corresponding angles and alternate interior angles is equal.

If a transversal intersects two parallel lines, then each pair of interior angles on the same side of the transversal is supplementary.

**SUBTOPICS:**

**Basic terms and definition** - Collinear points, Non-Collinear points, Line segment, Concurrent lines

**Types of angles-** Acute, Obtuse, Right, Reflex and Straight

**Pairs of Angles-** Adjacent angles, Vertically opposite angles, Complementary angles, Supplementary angles, Linear pair angles, Intersecting lines, Parallel lines and Transversal

**KEY POINTS AND IMPORTANT LINKS FOR REFERENCE:**

- 1.Linear Pair. Refer to the link :- <https://www.youtube.com/watch?v=bsldGz7OTF0>
2. A line which intersects two or more lines at distinct points is called a transversal . Angles made by transversal and parallel lines.  
<https://www.youtube.com/watch?v=6RMN5Pf1fHU>
- 3.Theorem 6.1: If two lines intersect each other, then the vertically opposite angles are equal. <https://www.youtube.com/watch?v=6o5meJJEyY4>
- 4.Theorem 6.2 to 6.5 (Only application) [**\* No proof required**]
5. If a transversal intersects two lines such that a pair of alternate interior angles is equal, then the two line are parallel.
6. If a transversal intersects two lines such that a pair of interior angles on the same side of the transversal is supplementary, then the two lines are parallel.
7. Exercise 6.1 – Q1 <https://www.youtube.com/watch?v=pG2d4lDenn4>
8. Exercise 6.1- Q5 <https://www.youtube.com/watch?v=tZZs623AiWw>
9. Exercise of 6.2 – Q3 <https://www.youtube.com/watch?v=ORlq6CpJlsA>
10. For further reference:- <https://examfear.com/>

**Points to remember:**

- 1.If a ray stands on a line, then the sum of the two adjacent angles so formed is  $180^\circ$  and vice-versa. This property is called the **Linear pair axiom**.
2. If a transversal intersects two parallel lines, then
  - (i) each pair of corresponding angles is equal,
  - (ii) each pair of alternate interior angles is equal,
  - (iii) each pair of interior angles on the same side of the transversal is supplementary
3. If a side of a triangle is produced, the exterior angle so formed is equal to the sum of the two interior opposite angles.

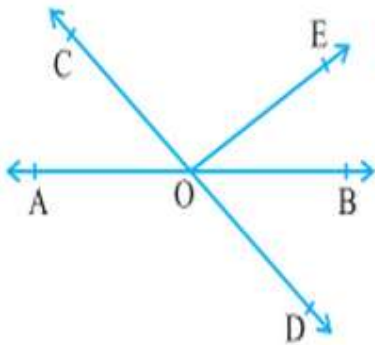
### ASSIGNMENT:-

- Revise Solved Examples 1, 2 and 3
- Questions to be done in yellow register:
- Exercise 6.1 - Q2, Q3, Q6
- Exercise 6.2 - Q3

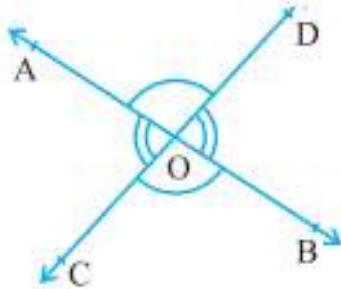
### PRACTICE

1. Fill in the blanks: If three or more points lie on the same line, they are called \_\_\_\_\_ points.
2. In the given figure, find the sum of

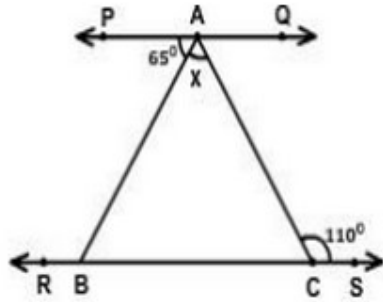
$$\angle AOC + \angle COE + \angle EOB + \angle BOD + \angle DOA$$



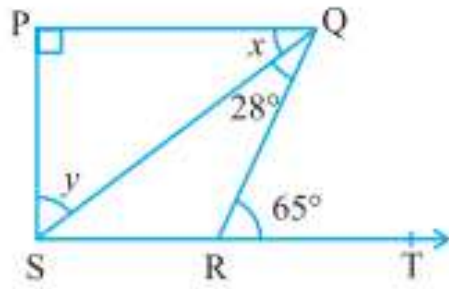
3. In the given figure if  $\angle AOD = 130^\circ$ , find  $\angle BOC$



4. In the given figure  $PQ \parallel RS$ . Find the value of  $x$ ?



5. The angles of triangle are  $(x + 10^\circ)$ ,  $(2x - 30^\circ)$  and  $x^\circ$ . Find the value of  $x$ .
6. What is the angle measurement of a straight line?
7. Fill in the blanks: Angles of a triangle are in the ratio 2:3:5. The smallest angle of the triangle is \_\_\_\_\_.
8. In the given figure if  $PQ \perp PS$ ,  $PQ \parallel SR$ ,  $\angle SQR = 28^\circ$  and  $\angle QRT = 65^\circ$ , then find the values



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