Class 7-Mathematics
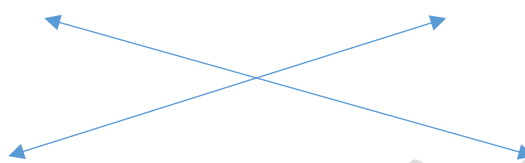
Instructions for students: The notes provided must be copied to the Maths copy and then do the homework in the same copy.

Chapter 10

LINES AND ANGLES

Pair of Lines

Intersecting Lines: Two lines are said to be intersecting if they have a common point.
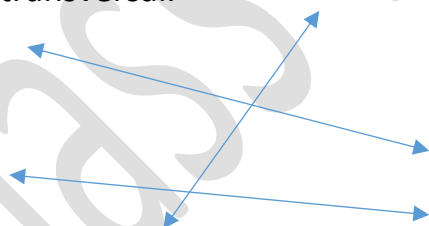

Parallel Lines: Two lines are said to be parallel if they have no point in common. i.e. if they do not meet.

Transversal: Aline that intersects two or more lines in a point at different points is called a transversal.

Transversal

Properties of angles made by transversal with two parallel lines

1. Each pair of alternate interior (exterior) angles are equal.
2. Each pair of corresponding angles are equal.
3. Each pair of co – interior angles are supplementary.

Conditions of parallelism:

- If two lines are cut by a transversal such that a pair of corresponding angles are equal, then the lines are parallel.

- If two lines are cut by a transversal such that a pair of alternate angles are equal, then the lines are parallel.
- If two lines are cut by a transversal such that a pair of co-interior angles are supplementary, then the lines are parallel.

Exercise 10.2

3.   i) $x = 100^0$ (Corresponding angles)

     ii) $x + 110^0 = 180^0$ (Co-interior angles)

     $\Rightarrow x \qquad = 180^0 - 110^0 = 70^0$

     iii) $x + 110^0 = 180^0$ (Linear pair of x is corresponding angle of 110^0)

       $x \qquad = 180 - 110$

            $= 70^0$

5.   iv) $x + 128^0 = 180^0$

      $x \qquad = 180^0 - 128^0$

           $= 52^0$

      $y \qquad = x$ (corresponding angles)

      $y \qquad = 52^0$

      $z \qquad = 128^0$ (Corresponding angles)

6. $x + 120^0 \qquad = 180^0$ (Co-interior angles)

     $x \qquad\qquad = 180^0 - 120^0 = 60^0$

     $y + 140^0 \qquad = 180^0$ (Co-interior angles)

     $y \qquad\qquad = 180^0 - 140^0 = 40^0$

     Angle ECA $\quad = x + y = 60^0 + 40^0$

                 $= 100^0$

     Reflex angle ECA $= 360^0 - 100^0$

               $= 260^0$

9. Sum of co-interior angles $= 106 + 64$

                             $= 170^0$

l and *m* are not parallel because co-interior angles are not supplementary.

Home Work: Complete Exercise 10.2 in the Maths Copy.

MATHS PRACTICAL

Points to remember .

Read and understand the experiment.

In the Maths Practical Copy write down AIM, MATERIAL REQUIRED , METHODOLOGY , TABULAR COLUMN and CONCLUSION on the ruled page. DIAGRAM and CALCULATION on the plane page.

Follow the PROCEDURE properly to get the correct conclusion.

MATHS PRACTICAL COPY must be a soft cover Lab copy with atleast 50 to 60 pages.

Experiment No.3

AIM: To find the length of a long thread by using Cylindrical object and a Ruler.

MATERIALS REQUIRED

> 1.A long thread
> 2.Three cylindrical objects of different radii (e.g. Pieces of PVC pipes or Bottles having different radii)
> 3.A ruler

METHODOLOGY

 Circumference of a circle = $2\pi r$

Length of the thread = $n \times 2\pi r + correction.$

(Where `n' is the number of turns)

PROCEDURE

Follow all the steps below in order

Step 1. Measure the diameter of each cylindrical object (PVC pipes) by using a ruler.

Step 2. Wind the given thread evenly over the pipe so that one end of the thread starts from the marking on the pipe.

Step 3. Count the number of complete turns on the pipe while the thread is being wound on the pipe (ie one turn is equal to the thread from mark to mark on the pipe)
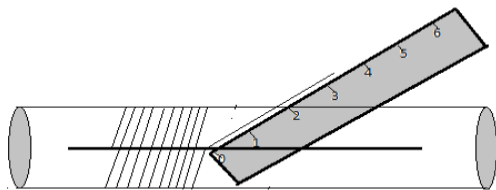
Step 4. After counting the complete turns ,measure the length of the left over part of the thread(i.e correction) with the help a ruler.

Step 5. Note down the above data in the observation table.

Step 6. Repeat the above steps with the help of other cylindrical objects and using the same thread.

OBSERVATION TABLE

Trial no.	Diameter of the pipe(d)	Circumference of the pipe $d.\pi$	No. of turns `n'	Correction (c)	Length of the thread	
					Before correction a =n.dπ	Actual length $(a + c)$
1						L_1=
2						L_2=
3						L_3=

Average length =$\frac{L_1+L_2+L_3}{3}$=

CONCLUSION

The length of the given thread is equal to------