BAL BHARATI PUBLIC SCHOOL, PITAMPURA

SUBJECT: - MATHEMATICS

CLASS: - VI

WEEK: 11thDEC ’20 to 17th DEC ’20
NO. OF BLOCKS :3

CHAPTER–10 : MENSURATION

GUIDELINES

Dear Students
Kindly refer to the following notes/video links for the Chapter- “MENSURATION” PART -1 and thereafter do the questions in your Mathematics notebook.
NOTE- Students can download the NCERT textbook using the following link: -

http://ncert.nic.in/textbook/textbook.htm?hemh1=0-16

Subtopics:

1) 2D shapes : regular or any closed figure made of line segments.
2) Perimeter of regular and irregular figures.
3) Word problems related to perimeter.

Learning Outcomes :

Each Student will be able to-

(i)Differentiate between various regular shapes.

(ii) Find the perimeter of different polygons.

Teaching Aids used :

E-lesson

Whiteboard or register using Device Camera

YouTube videos

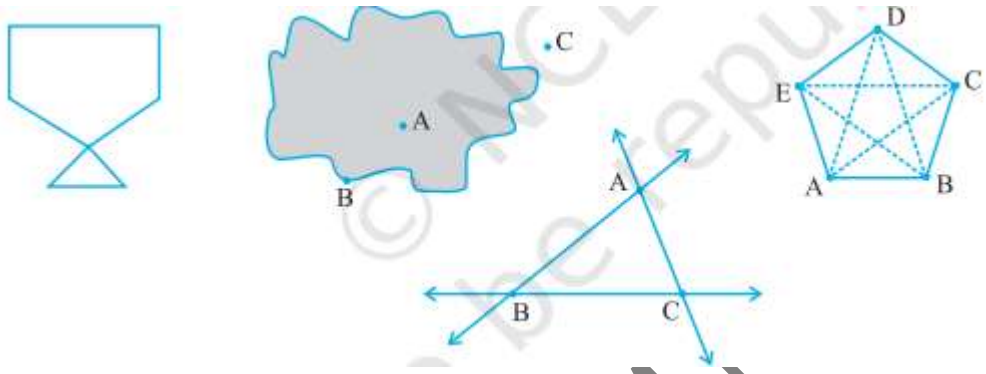
Khan Academy link

BLOCK I

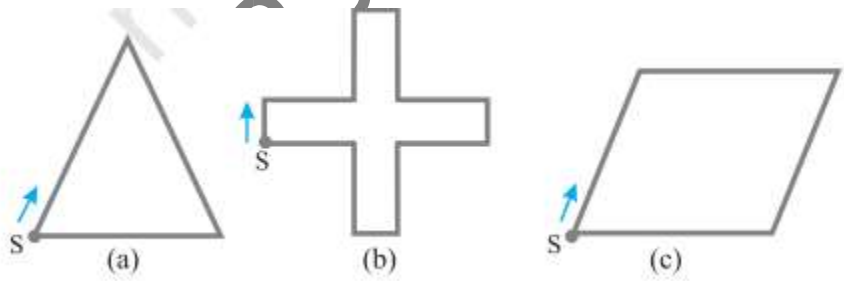
LESSON DEVELOPMENT

SUBTOPIC 1

When we talk about some plane figures as shown below we think of their regions and their boundaries. We need some measures to compare them. We look into these now.



PERIMETER :



Look at the following figures. You can make them with a wire or a string. If you start from the point S in each case and move along the line segments then you again reach the point S. You have made a complete round of the shape in each case (a), (b) & (c).

The distance covered is equal to the length of wire used to draw the figure.

This distance is known as the perimeter of the closed figure.

It is the length of the wire needed to form the figures.

DAILY LIFE APPLICATION

The idea of perimeter is widely used in our daily life:

1. A farmer who wants to fence his field.
2. An engineer who plans to build a compound wall on all sides of a house.
3. A person preparing a track to conduct sports.

All these people use the idea of 'perimeter'.

Perimeter is the distance covered along the boundary forming a closed figure when you go round the figure once.

1. Measure and write the length of the four sides of the top of your study table.

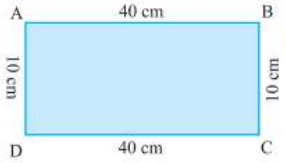
AB = _____ cm
BC = _____ cm
CD = _____ cm
DA = _____ cm

Now, the sum of the lengths of the four sides
= AB + BC + CD + DA
= ____ cm + ____ cm + ____ cm + ____ cm
= _____ cm

What is the perimeter?

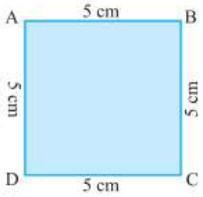
2. Find the perimeter of the following figures-

(a)



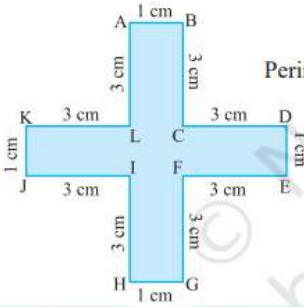
Perimeter = AB + BC + CD + DA
= __+__+__+__+__+__
= _____

(b)



Perimeter = AB + BC + CD + DA
= __ + __ + __ +
= _____

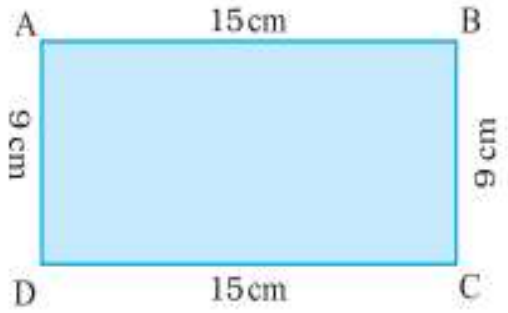
(c)



Perimeter = AB + BC + CD + DE
+ EF + FG + GH + HI
+ IJ + JK + KL + LA
= __+__+__+__+__+
__+__+__+__+__+__
+__+__
= _____

PERIMETER OF RECTANGLE

Let us consider a rectangle ABCD whose length and breadth are 15 cm and 9 cm respectively. What will be its perimeter?



Perimeter of the rectangle
= Sum of the lengths of its four sides.
= AB + BC + CD + DA
= AB + BC + AB + BC
= 2 × AB + 2 × BC
= 2 × (AB + BC)
= 2 × (15cm + 9cm)
= 2 × (24cm) = 48 cm

Perimeter of a rectangle = length + breadth + length + breadth

Perimeter of a rectangle = 2 × (length + breadth)

Find the perimeter of the following rectangles:

Length of rectangle	Breadth of rectangle	Perimeter by adding all the sides	Perimeter by 2 × (Length + Breadth)
25 cm	12 cm	= 25 cm + 12 cm + 25 cm + 12 cm = 74 cm	= 2 ×(25 cm + 12 cm) = 2 × (37 cm) = 74 cm

Perimeter of regular shapes

Consider this example.
Bhavika wants to put coloured tape all around a square picture of side 1 m
What will be the length of the coloured tape she requires?
She needs to find the perimeter of the picture frame.
Thus, the length of the tape required
= Perimeter of square
= 1m + 1 m + 1 m + 1 m = 4 m
Now, we know that all the four sides of a square are equal.
Thus, the length of the tape required = 4 × 1 m = 4 m
From this example, we see that Perimeter of a square = 4 × length of a side.
Now, consider an equilateral triangle with each side equal to 4 cm.
Perimeter of this equilateral triangle = 4 + 4 + 4 cm = 3 × 4 cm = 12 cm
So, we find that Perimeter of an equilateral triangle = 3 × length of a side.
What is similar between a square and an equilateral triangle?
They are figures having all the sides of equal length and all the angles of equal measure. Such figures are known as regular closed figures. Thus, a square and an equilateral triangle are regular closed figures.

Perimeter of a square = 4 × length of one side

Perimeter of an equilateral triangle = 3 × length of one side

So, what will be the perimeter of a regular pentagon.

A regular pentagon has five equal sides.

Therefore, perimeter of a regular pentagon = 5 × length of one side

Similarly, the perimeter of a regular hexagon = 6 x length of one side

The perimeter of a regular octagon = 8 x length of one side.

Example 1 :

Find the perimeter of a regular pentagon with each side measuring 3 cm.

Solution :

This regular closed figure has 5 sides, each with a length of 3 cm.

Thus, we get Perimeter of the regular pentagon = 5 × 3 cm = 15 cm

Example 2:

The perimeter of a regular hexagon is 18 cm. How long is its one side ?

Solution :

Perimeter = 18 cm

A regular hexagon has 6 sides, so we can divide the perimeter by 6 to get the length of one side.

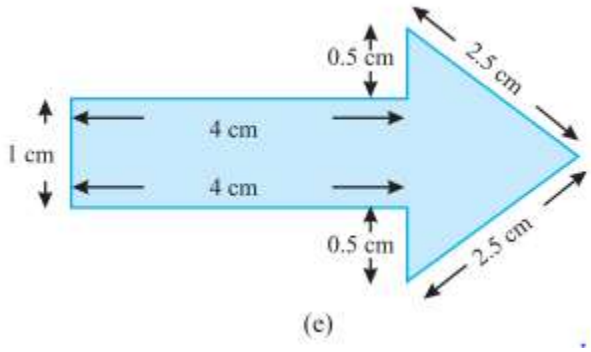
One side of the hexagon = 18 cm ÷ 6 = 3 cm

Therefore, length of each side of the regular hexagon is 3 cm. EXERCISE

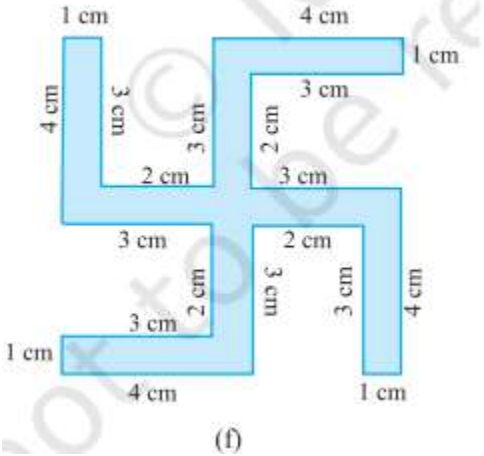
Class Assignment (To be done in Maths practice notebook)

EXERCISE 10.1 : Q1 (e , f) , Q6 ,Q9 ,Q10

Q1.Find the perimeter of each of the following figures :



(e)



(f)

Q6. Find the perimeter of each of the following shapes :
(a) A triangle of sides 3 cm, 4 cm and 5 cm.
(b) An equilateral triangle of side 9 cm.
(c) An isosceles triangle with equal sides 8 cm each and third side 6 cm
Q 9. Find the side of the square whose perimeter is 20 m.
Q10. The perimeter of a regular pentagon is 100 cm. How long is its each side? 1

Home Assignment (to be done in Mathematics Notebook)

EXERCISE 10.1 :

Q1 (a , b ,c ,d, e) , Q7 , Q8 ,Q11, Q12

Refer to the following link :

1. https://www.examfear.com/free-video-lesson/Class-6/Maths/Mensuration/part-1/Maths_Mensuration_part_1_(Introduction).htm
2. https://www.examfear.com/free-video-lesson/Class-6/Maths/Mensuration/part-2/Maths_Mensuration_part_2_(Perimeter_of_Rectangle_and_Square).htm
3. https://www.examfear.com/free-video-lesson/Class-6/Maths/Mensuration/part-3/Maths_Mensuration_part_3_(Perimeter_of_Polygons).htm

BLOCK II

LESSON DEVELOPMENT

Word problems based on Perimeter

Example 1.

An athlete takes 10 rounds of a rectangular park, 50 m long and 25 m wide. Find the total distance covered by him.

Solution :

Length of the rectangular park = 50 m

Breadth of the rectangular park = 25 m

Total distance covered by the athlete in one round will be the perimeter of the park.

Now, perimeter of the rectangular park.

= 2 × (length + breadth)

= 2 × (50 m + 25 m)

= 2 × 75 m = 150 m

So, the distance covered by the athlete in one round is 150 m.

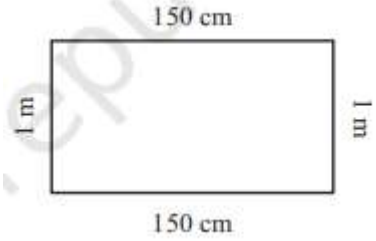
Therefore, distance covered in 10 rounds = 10 × 150 m = 1500m.

The total distance covered by the athlete is 1500 m. = 1km 500m.

Example 2:

Find the perimeter of a rectangle whose length and breadth are 150 cm and 1 m respectively.

Solution :



Length = 150 cm Breadth = 1m = 100 cm

Perimeter of the rectangle = 2 × (length + breadth)

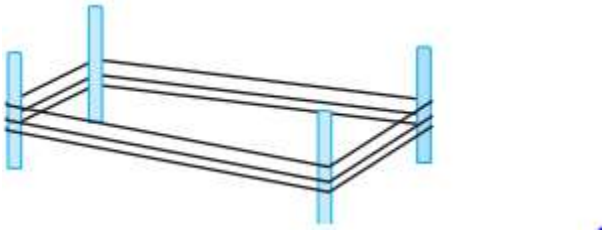
= 2 × (150 cm + 100 cm)

= 2 × (250 cm) = 500 cm = 5 m

Example 3 :

A farmer has a rectangular field of length and breadth 240 m and 180 m respectively. He wants to fence it with 3 rounds of rope as shown in figure What is the total length of rope he must use?

Solution :



The farmer has to cover three times the perimeter of that field.

Therefore, total length of rope required is thrice its perimeter.

Perimeter of the field = 2 × (length + breadth)

= 2 × (240 m + 180 m) = 2 × 420 m = 840 m

Total length of rope required = 3 × 840 m = 2520 m

Example 4 :

Pinky runs around a square field of side 75 m, Bob runs around a rectangular field with length 160 m and breadth 105 m. Who covers more distance and by how much?

Solution :

Distance covered by Pinky in one round

= Perimeter of the square = 4 × length of a side = 4 × 75 m = 300 m

Distance covered by Bob in one round

= Perimeter of the rectangle = 2 × (length + breadth)

= 2 × (160 m + 105 m) = 2 × 265 m = 530 m

Difference in the distance covered = 530 m – 300 m = 230 m.

Therefore, Bob covers more distance by 230 m.

Refer to the following link :

1. https://www.examfear.com/free-video-lesson/Class-6/Maths/Mensuration/part-4/Maths_Mensuration_part_4_(How_does_Perimeter_Help).htm
2. https://www.examfear.com/free-video-lesson/Class-6/Maths/Mensuration/part-5/Maths_Mensuration_part_5_(Questions_1_:Perimeter).htm
3. https://www.examfear.com/free-video-lesson/Class-6/Maths/Mensuration/part-6/Maths_Mensuration_part_6_(Questions_2_:Perimeter).htm

Class Assignment (To be done in Math practice notebook)

EXERCISE10.1 : Q13 , Q14 , Q15

Q13. Find the cost of fencing a square park of side 250 m at the rate of Rs 20 per metre.

Q14. Find the cost of fencing a rectangular park of length 175 m and breadth 125 m at the rate of Rs 12 per metre.

Q15. Sweety runs around a square park of side 75 m. Bulbul runs around a rectangular park with length 60 m and breadth 45 m. Who covers less distance?

Home Assignment (to be done in Math fair Notebook)

EXERCISE 10.1 : Q2 ,Q3, Q4 ,Q5

BLOCK III

LESSON DEVELOPMENT

ACTIVITY RELATED TO PERIMETER OF FIGURES

ACTIVITY 1.

Avneet buys 9 square paving slabs, each with a side of 0.5 m. He lays them in the form of a square.

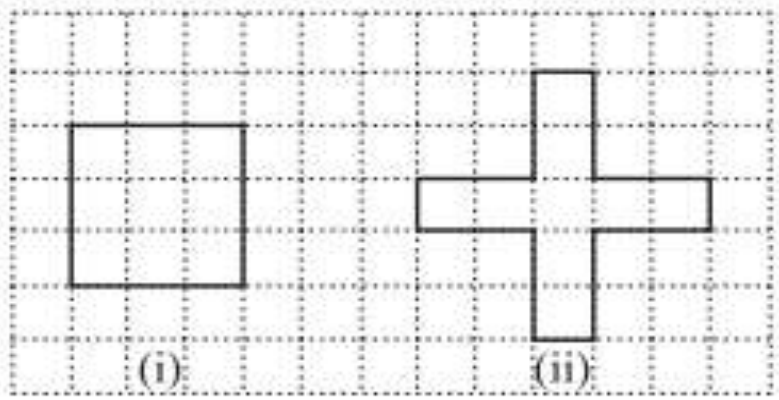
(a) What is the perimeter of his arrangement [Fig (i)] ?

(b) Shari does not like his arrangement. She gets him to lay them out like a cross. What is the perimeter of her arrangement (Fig ii) ?

(c) Which has greater perimeter?

(d) Avneet wonders if there is a way of getting an even greater perimeter. Can you find a way of doing this?

(The paving slabs must meet along complete edges i.e. they cannot be broken.)



ACTIVITY 2.

DRAW RECTANGLES ON 1cm GRID PAPER , HAVING PERIMETER AS GIVEN-

1. 14
2. 24
3. 28
4. 30
5. 32
6. 36

NOTE DOWN YOUR OBSERVATIONS IN TABULAR FORM

	PERIMETER	LENGTH	BREADTH
1.			
2.			
3.			
4.			
5.			
6.			

Summary

1. Perimeter is the distance covered along the boundary forming a closed figure when you go round the figure once.
2. (a) Perimeter of a rectangle = 2 × (length + breadth)
   (b) Perimeter of a square = 4 × length of its side
   (c) Perimeter of an equilateral triangle = 3 × length of a side
3. Figures in which all sides and angles are equal are called regular closed figures.
4. Perimeter of Equilateral triangle = 3 x side
5. Perimeter of regular pentagon = 5 x side
6. Perimeter of regular hexagon = 6 x side

Practice Assignment

Question 1.

Perimeter of a rectangle =

(a) Length × Breadth

(b) Length + Breadth

(c) 2 × (Length + Breadth)

(d) 2 × (Length × Breadth).

Question 2.

Perimeter of a square =

(a) 4 × Length of a side

(b) 2 × Length of a side

(c) 3 × Length of a side

(d) 6 × Length of a side.

Question 3.

Perimeter of an equilateral triangle

(a) 2 × Length of a side

(b) 3 × Length of a side

(c) 4 × Length of a side

(d) 6 x Length of a side.

Question4.

Perimeter of a regular pentagon =

(a) 4 × Length of a side

(b) 3 × Length of a side

(c) 6 × Length of a side

(d) 5 × Length of a side.

Question5.

Apala went to a park 20 m long and 10 m wide. She took one complete round of it. The distance covered by her is

(a) 30 m

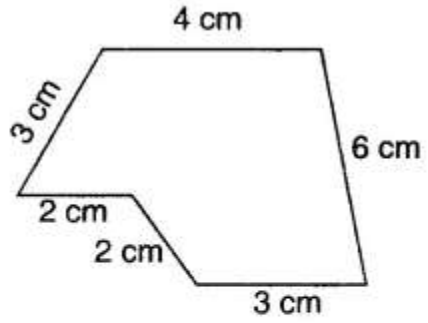
(b) 60 m

(c) 20 m

(d) 10 m.

Question6.

The perimeterof the figure is



(a) 20 cm

(b) 10 cm

(c) 24 cm

(d) 15 cm.

Question7.

An athlete takes 10 rounds of a rectangular park, 40 m long and 30 m wide. Find the total distance covered by him.

(a) 1400 m

(b) 700 m

(c) 70 m

(d) 2800 m.

Question8.

Find the cost of fencing a rectangular park of length 10 m and breadth 5 m at the rate of? 10 per metre.

(a) ₹ 300

(b) ₹ 600

(c) ₹ 150

(d) ₹ 1200.