



BAL BHARATI PUBLIC SCHOOL, PITAMPURA

SUBJECT: - MATHEMATICS

CLASS: - VI

WEEK: 18th DEC '20 to 23rd 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 -2 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) Area of regular and irregular figures.
- 3) Word problems related to Area.

Learning Outcomes :

Each Student will be able to

- Differentiate between various regular shapes
- Find the Area of different polygons
- Analyse and interpret the word problems related to area

Teaching Aids used :

E-lesson

Whiteboard or register using Device Camera

YouTube videos

Khan Academy link

BLOCK I

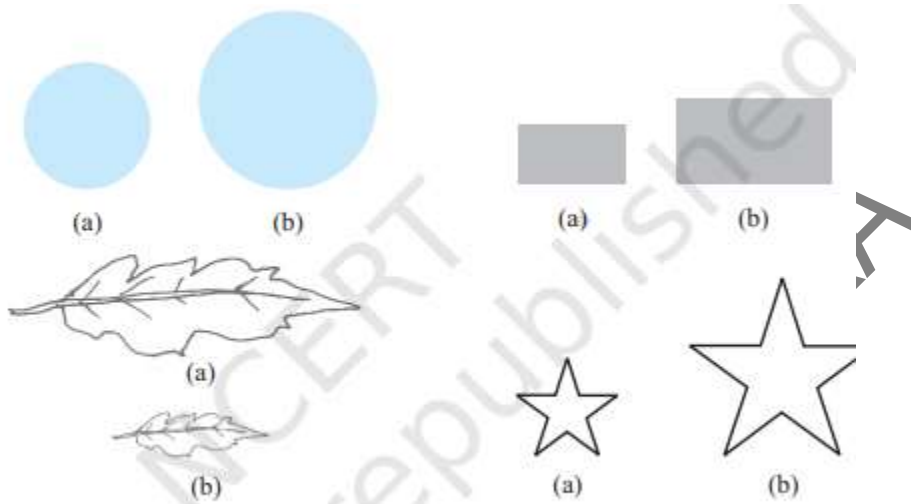
LESSON DEVELOPMENT

SUBTOPIC 1

Look at the closed figures (Fig 10.8) given below. All of them occupy some region of a flat surface.

The amount of surface enclosed by a closed figure is called its area

Can you tell which one occupies more region?



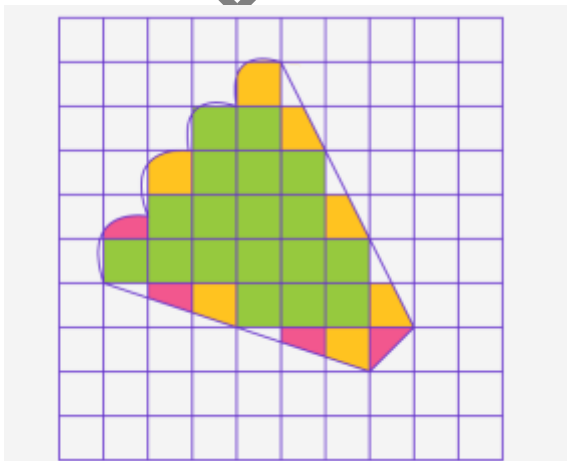
Which one of these has larger area?

It is difficult to tell just by looking at these figures. So, what do you do?

Place them on a squared paper or graph paper where every square measures $1 \text{ cm} \times 1 \text{ cm}$.

Make an outline of the figure. Look at the squares enclosed by the figure.

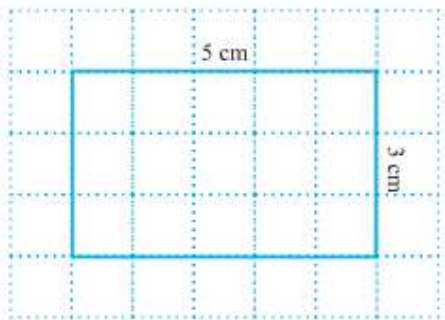
Some of them are completely enclosed, some half, some less than half and some more than half. The area is the number of centimetre squares that are needed to cover it.



Number of green squares (complete squares) = 18
Number of yellow squares (more than half squares) = 7
Number of pink squares (equal to half squares) = 4
Area of above figure = $18 + 7 + 4 \div 2 = 18 + 7 + 2 = 27$ sq cm
This is how we estimate the area of given irregular figures.

AREA OF RECTANGLE

Draw the rectangle on a graph paper having 1 cm × 1 cm squares.
The rectangle covers 15 squares completely.
The area of the rectangle = 15 sq cm which can be written as 5×3 sq cm i.e. (length × breadth).

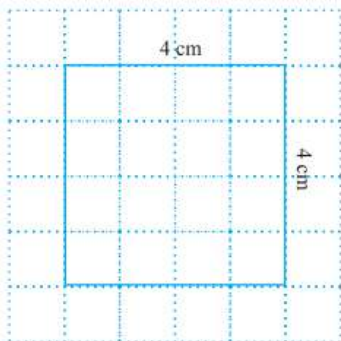


Area of a rectangle = (length × breadth)
Without using the graph paper, we can find the area of a rectangle whose length is 6 cm and breadth is 4cm.

Area of the rectangle = length × breadth = 6 cm × 4 cm = 24 sq cm.

AREA OF SQUARE

Consider a square of side 4 cm



It covers 16 squares i.e. the area of the square = 16 sq cm = 4×4 sq cm.

Area of the square = side × side

Example 1 : Find the area of a rectangle whose length and breadth are 12 cm and 4 cm respectively.

Solution : Length of the rectangle = 12 cm Breadth of the rectangle = 4 cm
Area of the rectangle = length \times breadth = 12 cm \times 4 cm = 48 sq cm

Example 2 : Find the area of a square plot of side 8 m.

Solution : Side of the square = 8 m
Area of the square = side \times side = 8 m \times 8 m = 64 sq m.

Example 3 : The area of a rectangular piece of cardboard is 36 sq cm and its length is 9 cm. What is the width of the cardboard?

Solution : Area of the rectangle = 36 sq cm

Length = 9 cm Width = ?

Area of a rectangle = length \times width

$$\text{So, width} = \frac{\text{Area}}{\text{Length}} = \frac{36}{9} = 4 \text{ cm}$$

Width of cardboard is 4 cm.

Class Assignment (To be done in Maths practice notebook)

EXERCISE 10.3 : Q3 ,Q5 ,Q6,

EXERCISE – 10.3

Q3. The length and breadth of three rectangles are as given below :

(a) 9 m and 6 m (b) 17 m and 3 m (c) 4 m and 14 m

Which one has the largest area and which one has the smallest?

Q5. What is the cost of tiling a rectangular plot of land 500 m long and 200 m wide at the rate of 8 per hundred sq m.?

Q6. A table-top measures 2 m by 1 m 50 cm. What is its area in square metres?

Home Assignment (to be done in Mathematics Notebook)

EXERCISE 10.3 : Q1 , Q2 ,Q4 ,Q7

Refer to the following link :

1. <https://youtu.be/e2qGbD8A-4o>
2. <https://youtu.be/eRymlQmTqv4>

BLOCK II

LESSON DEVELOPMENT

Word problems based on Area

Example 4 : Bob wants to cover the floor of a room 3 m wide and 4 m long by squared tiles. If each square tile is of side 0.5 m, then find the number of tiles required to cover the floor of the room.

Solution : Total area of tiles must be equal to the area of the floor of the room.

Length of the room = 4 m Breadth of the room = 3 m

Area of the floor = length \times breadth = 4 m \times 3 m = 12 sq m

Area of one square tile = side \times side = 0.5 m \times 0.5 m = 0.25 sq m

Number of tiles required = Area of the floor \div Area of one tile

$$= 12 \div 0.25$$

$$= 1200 \div 25$$

$$= 48 \text{ tiles.}$$

Example 5 : Find the area in square metre of a piece of cloth 1m 25 cm wide and 2 m long.

Solution : Length of the cloth = 2 m

Breadth of the cloth = 1 m 25 cm = 1 m + 0.25 m = 1.25 m

(since 25 cm = 0.25m)

Area of the cloth = length of the cloth \times breadth of the cloth

$$= 2 \text{ m} \times 1.25 \text{ m} = 2.50 \text{ sq m}$$

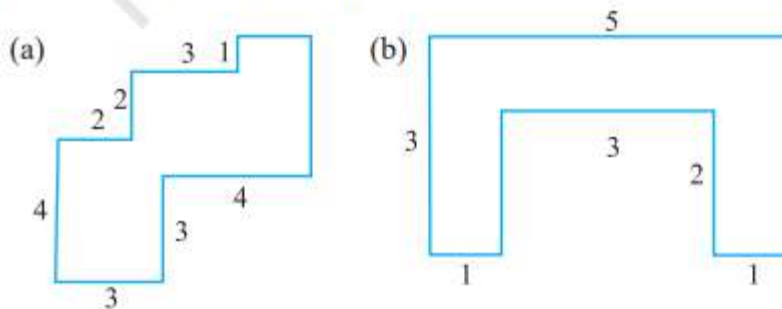
Class Assignment (To be done in Math practice notebook)

EXERCISE 10.3: Q9 , Q10 , Q12(a)

Q9. Five square flower beds each of sides 1 m are dug on a piece of land 5 m long and 4 m wide. What is the area of the remaining part of the land ?

Q10.

By splitting the following figures into rectangles, find their areas
(The measures are given in centimetres).



Q12. How many tiles whose length and breadth are 12 cm and 5 cm respectively

will be needed to fit in a rectangular region whose length and breadth are respectively: (a) 100 cm and 144 cm

Home Assignment (to be done in Math fair Notebook)

EXERCISE 10.3 : Q8 , Q11 , Q12 (b)

Refer to the following link :

1. <https://youtu.be/SKJ5K-wy2Ro>

2. <https://youtu.be/Wr-eBc2bXNs>

BLOCK III

LESSON DEVELOPMENT

ACTIVITY RELATED TO AREA OF FIGURES

ACTIVITY - 1.

On a centimetre squared paper, make as many rectangles as you can, such that the area of the rectangle is 16 sq cm (consider only natural number lengths).

- (a) Which rectangle has the greatest perimeter?
- (b) Which rectangle has the least perimeter?

If you take a rectangle of area 24 sq cm, what will be your answers?

Given any area, is it possible to predict the shape of the rectangle with the greatest perimeter?

With the least perimeter? Give example and reason.

ACTIVITY - 2

The area is the number of centimetre squares that are needed to cover it.

Suitable conventions are adopted :

The area of one full square is taken as 1 sq unit.

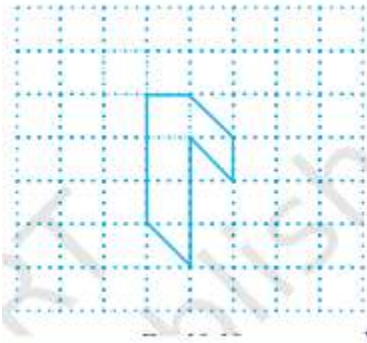
If it is a centimetre square sheet, then area of one full square will be 1 sq cm.

Ignore portions of the area that are less than half a square = 0 sq .units.

If more than half of a square is in a region, just count it as one square.= 1 sq.units

If exactly half the square is counted, take its area as 0.5 sq unit.

Such a convention gives a fair estimate of the desired area.



This figure is made up of line-segments.

Moreover, it is covered by full squares and half squares only.

This makes our job simple.

(i) Fully-filled squares = 3

(ii) Half-filled squares = 3

Area covered by full squares = 3×1 sq units = 3 sq units

Area covered by half squares = $3 \times \frac{1}{2}$ sq.units = 1.5 sq.units

(iii) Total area = $3 + 1.5 = 4.5$ sq units.

By counting squares, estimate the area of any leaf of a plant. Also specify the leaf of which plant is taken

Refer to the link :

1. https://youtu.be/IEUop_yEmwM

Summary

1. The amount of surface enclosed by a closed figure is called its area.
2. To calculate the area of a figure using a squared paper, the following conventions are adopted :
 - (a) Ignore portions of the area that are less than half a square.
 - (b) If more than half a square is in a region. Count it as one square.
 - (c) If exactly half the square is counted, take its area as $\frac{1}{2}$ sq units.
3. (a) Area of a rectangle = length \times breadth
(b) Area of a square = side \times side

Practice Assignment

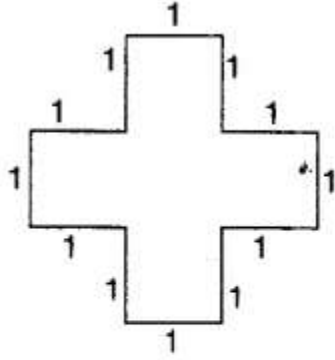
Q1.

The area of a rectangular sheet of paper is 20 cm^2 . Its length is 5 cm. Find its width.

- (a) 1 cm
- (b) 2 cm
- (c) 3 cm
- (d) 4 cm.

Q2.

The area of the figure is



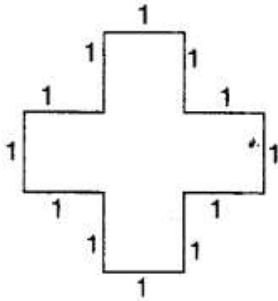
- (a) 1 sq. unit
- (b) 5 sq. unit
- (c) 4 sq. unit
- (d) 6 sq. unit

Q3. The area of a square of side 1 cm is

- (a) 1 cm²
- (b) 4 cm²
- (c) 9 cm²
- (d) 16 cm²

Question 4.

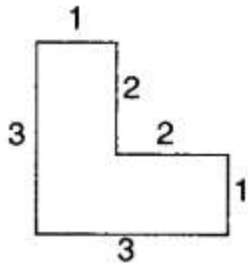
The area of the figure is



- (a) 1 sq. unit
- (b) 5 sq. unit
- (c) 4 sq. unit
- (d) 6 sq. unit

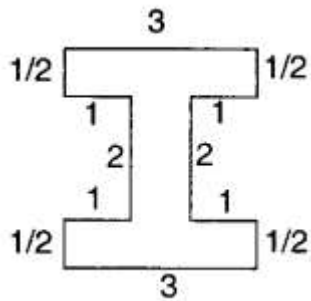
Question 5.

The area of the figure in (sq. unit) is



- (a) 1
- (b) 5
- (c) 4
- (d) 6

Question 6.
The area of the figure is



- (a) 5 sq. unit
- (b) 9 sq. unit
- (c) 7 sq. unit
- (d) 8 sq. unit.

BBPS, PITAM PURA