Chapter- 14

Perimeter and area

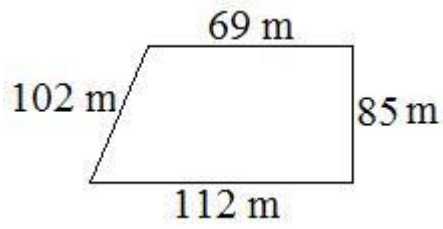
STUDY NOTES

LEARN ABOUT:

- **Perimeter and perimeter of different geometrical shapes**
- **Area and unit of area**
- **Area of an irregular figure**

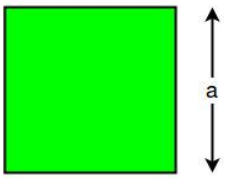
❖ PERIMETER AND PERIMETER OF DIFFERENT GEOMETRICAL SHAPES-

The length of the boundary of a closed figure is called its **perimeter**. It will be equal to the sum of all the sides of a closed figure.



Its perimeter will be the sum of all sides of the figure.
Perimeter = 69 m + 85 m + 112 m + 102 m = 368 m

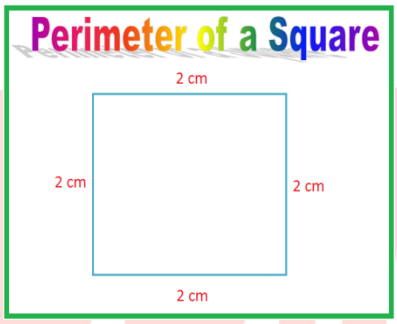
1. PERIMETER OF A SQUARE-



A square is a figure in which all the sides are equal. Perimeter of a square is the sum of all four equal sides.

Perimeter of a square = 4 x length of one side

EXAMPLE-1



Find the perimeter of a square of side 2 cm.

SOLUTION-

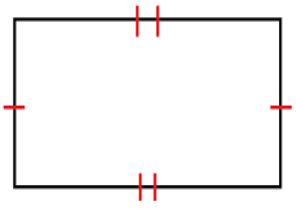
Length of one side = 2 cm

Perimeter = 4 x length of one side

= 4 x 2

= 8 cm

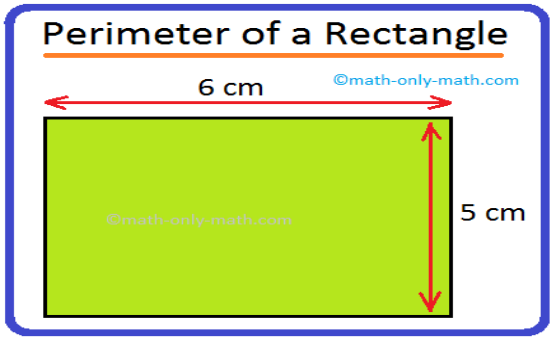
2. PERIMETER OF A RECTANGLE-



Rectangle is a closed figure having equal opposite sides. The longer side is known as length and the smaller side is known as breadth.

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

EXAMPLE-2



Find the perimeter of a rectangle of length 6 cm and breadth 5 cm.

SOLUTION-

Length = 6 cm

Breadth = 5 cm

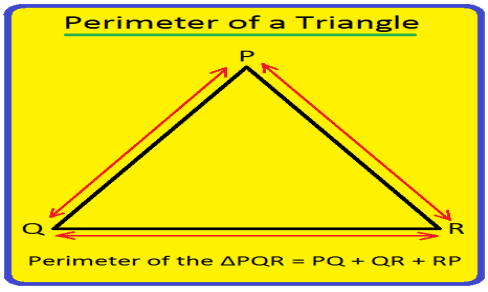
Perimeter = 2 x (length + breadth)

= 2 x (6 + 5)

= 2 x 11

= 22 cm

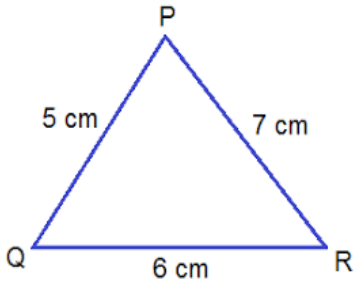
3. PERIMETER OF A TRIANGLE-



Triangle is a three sided closed figure. Perimeter of triangle will be the sum of all its sides.

Perimeter of triangle = sum of all three sides

EXAMPLE-3



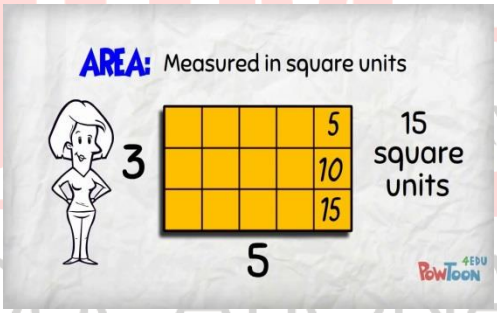
Find the perimeter of the given triangle.

SOLUTION-

Perimeter = 6 + 5 + 7

= 18 cm

❖ AREA AND UNIT OF AREA-

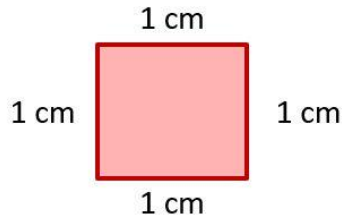


The surface enclosed by a 2-D or plane figure is known as its area.

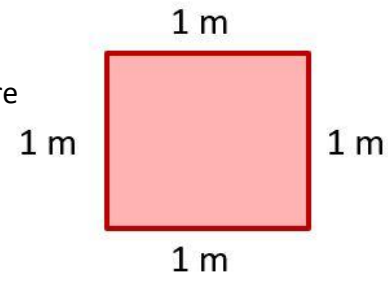
The shaded regions in the given figures are their respective areas.

UNIT OF AREA-

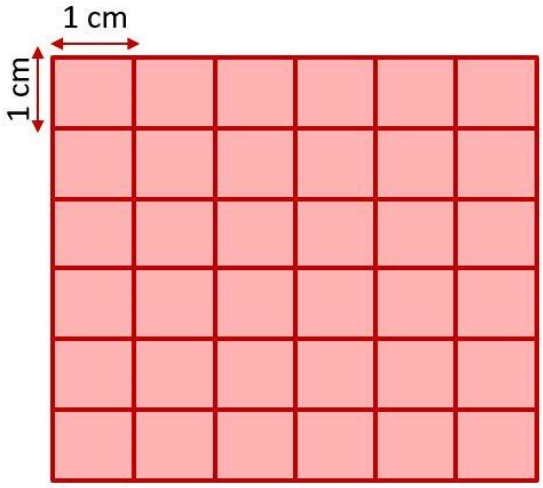
1. The area of a square whose side is 1 cm long is one square centimetre.
   It is written as cm or sq.cm.



2. The area of a square whose side is 1 m long is one square metre.
   It is written as m or sq.m.



❖ AREA OF AN IRREGULAR FIGURE-



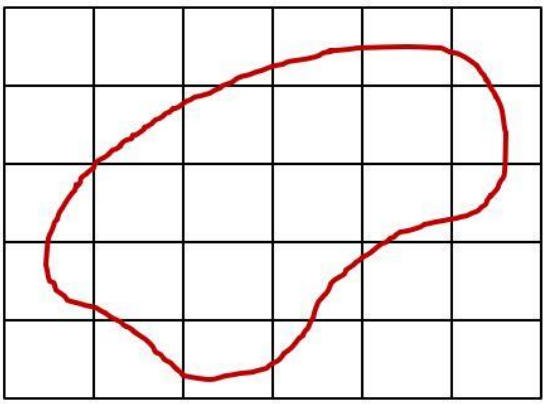
A graph paper is a squared paper consisting of squares of area 1 cm² each. We use a graph paper to find the area of irregular figures.

Example:

Find the area of the irregular figure given below by wising a graph paper.

Solution:

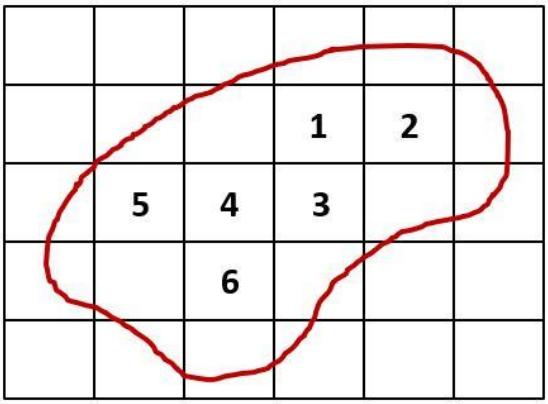
The irregular figure is first traced onto a graph paper.



- This figure contains some complete squares and some incomplete squares.

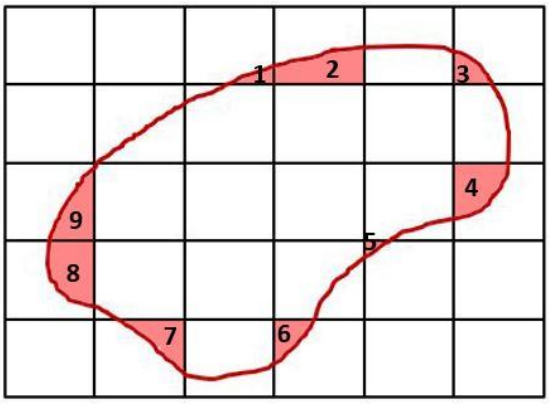
Step 1:

- Count the complete squares.
- There are 6 complete squares.



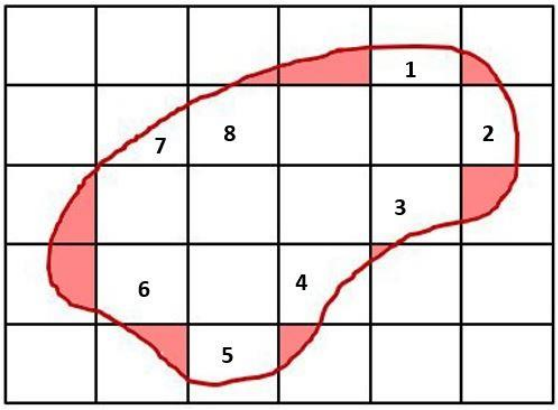
Step 2:

- Now, neglect the squares which are less than half of the full squares.
- Neglect 9 squares as shown in the figure.



Step 3:

- Count the squares which are half or more than half of the full squares.
- There are 8 such squares.



Now add all the squares.

Total squares = 6 + 8 = 14

There are approximately 14 complete squares and the area of each sq. is 1 m^2.

∴ Area of the figure = 1 × 14 = 14 m^2.

----------X---X---X----------