Chapter- 17

Perimeter and Area

STUDY NOTES

In this chapter, you will be able to:

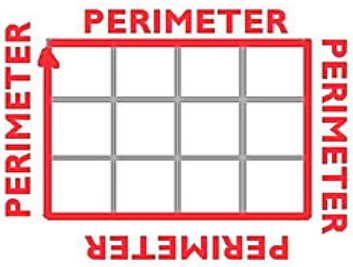
- **Find the perimeter and area of rectangles using formulae.**
- **Find the perimeter and area of squares using formulae.**

Let us Revise:

Perimeter

The **perimeter** is the total distance all the way around the outside of a 2D shape.

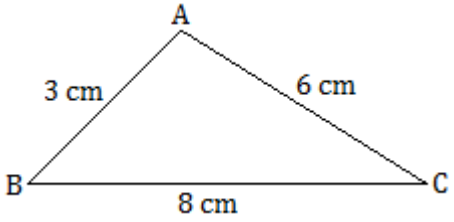
It refers to the length of the outline of the enclosed figure.



The units for perimeter are:

- mm (millimetre)
- cm (centimetre)
- m (metre)
- km (kilometre)

Example:



Here, sides of the triangle are AB = 3 cm, BC = 8 cm and AC = 6 cm

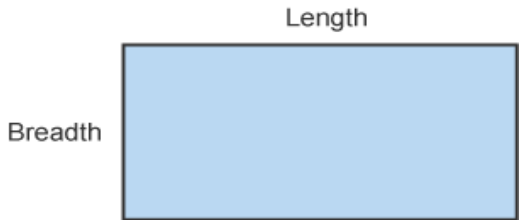
Perimeter of triangle = sum of all three sides

Therefore, the perimeter of the given triangle = 3 cm + 8cm + 6 cm = 17 cm

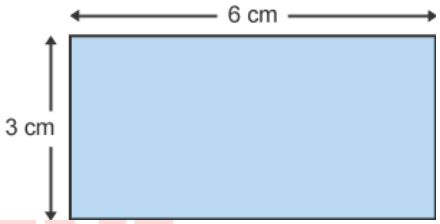
Rectangles

Perimeter of a rectangle

Opposite sides of a rectangle are equal in length.



Example:



Perimeter of a rectangle of length 6 cm and breadth 3 cm is:

Perimeter = Sum of all the sides

= 6 cm + 3 cm + 6 cm + 3 cm = 18 cm

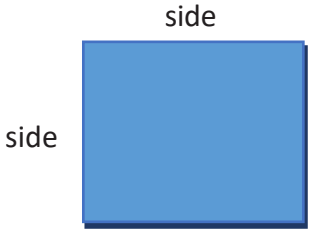
Or

Perimeter = 2 × (length + breadth) = 2 × (6 cm + 3 cm)

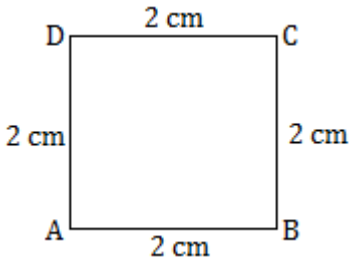
= 2 × 9 cm = 18 cm

Square

All sides of a square are equal in length.



Example:



Perimeter of a square of side 2 cm is:

Perimeter = Sum of all the sides

= 2 cm + 2 cm + 2 cm + 2 cm = 8 cm

Or

Perimeter = 4 × side = 4 × 2 cm

= 8 cm

Area

The **area** of a 2D shape is the amount of surface it covers.

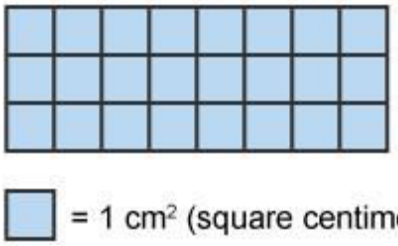
OR

The amount of surface a plane closed figure covers is called its **area**.

The units for area are:

- mm^2 (Square millimetre)
- cm^2 (Square centimetre)
- m^2 (Square metre)
- km^2 (Square kilometre)

Example



Area = 24 squares
Area = 24cm^2 (24 square centimeters)

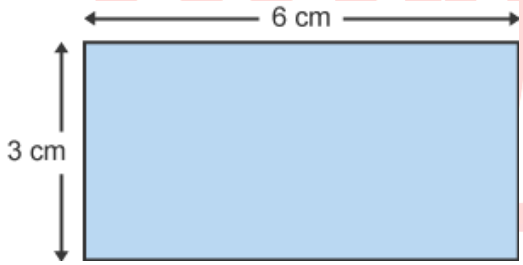
Area of a rectangle

The area of a rectangle can be found by multiplying the length by the breadth.

Area= length × breadth

A = l × b

Example



Area = length × breadth

= 6 cm × 3 cm = 18 cm^2

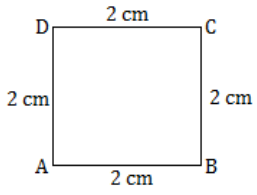
Area of a square

The area of a square can be found by multiplying the side by the side

Area= side × side

A = s × s

Example



Area = side × side

= 2 cm × 2 cm = 4 cm^2

Story sums:

1) The area of a rectangular piece of cardboard is 36 sq cm and its length is 9 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 × width

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

Thus, the width of the rectangular cardboard is 4 cm.

2) A picture is 80 cm long and 50 cm broad. What is the length of wooden frame needed for framing the picture? What is the area of the glass required to cover in the frame?

Solution:

Length of the picture = 80 cm

Breadth of the picture = 50 cm

<u>Part-1</u>

First, we have to find out the perimeter,

Perimeter of the picture = 2 × (Length + Breadth)

= 2 × (80 cm + 50 cm)

= 2 × 130 cm = 260 cm

So, the length of the wooden frame needed for framing the picture is 260 cm.

<u>Part-2</u>

Now, we have to find out the area of the picture,

Area of the picture = Length × Breadth

= 80 cm × 50 cm = 4000 sq cm

So, the area of the glass required to cover the picture in the frame is 4000 sq cm.

Let's sing!

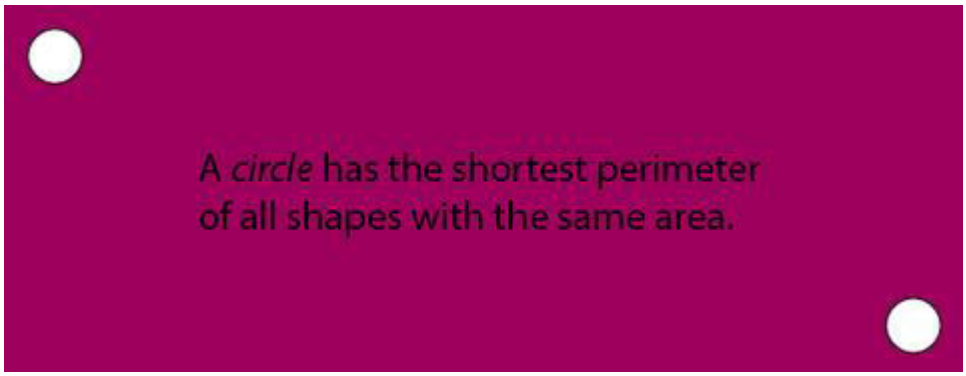
To fence around a movie theatre,

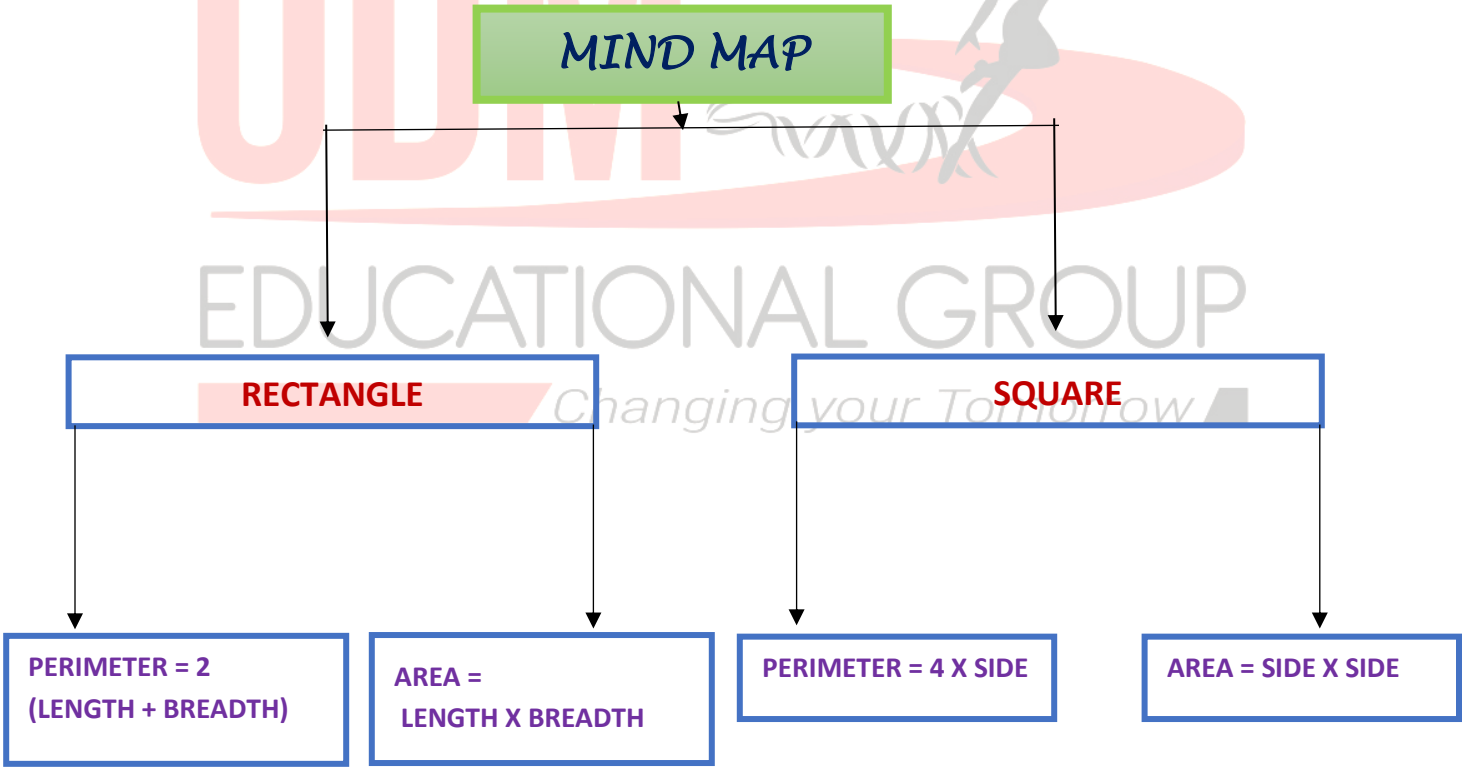
First, Peter found its perimeter.

He added the lengths of all the sides,

and fenced it with flowers big and wide.

AMAZING FACT :





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