Perimeter of Rectangle

Perimeter of Regular Shapes

Area

Perimeter of Rectangle

Mensuration is the branch of mathematics which deals with the study of Geometric shapes, their area, Volume and different parameters in geometric objects.

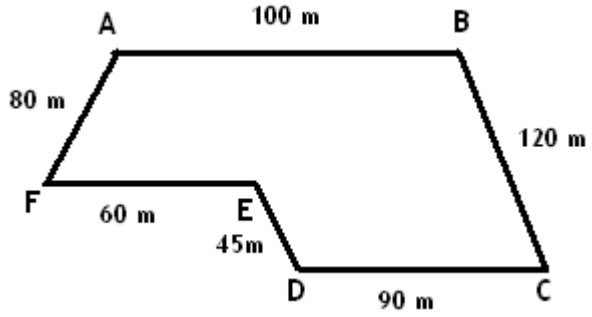
Perimeter:

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

The perimeter of any polygon is the sum of the lengths of all the sides.

Example:

Find out the perimeter of given figures:



Solution:

Perimeter of enclosed figure: sum of length of all sides

= AB+ BC+ CD+ DE+ EF +FA

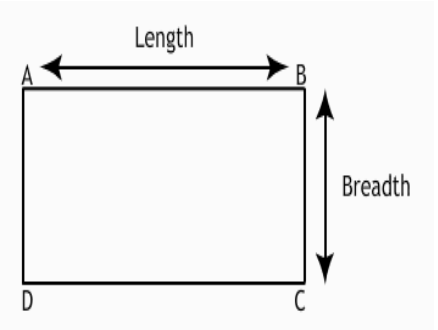
=100+ 120+ 90+ 45+ 60 + 80 m

=495 m

Perimeter of a rectangle:

Perimeter of a rectangle = sum of the length of its four sides.

Perimeter of a rectangle= 2(length + breadth)



Example1:

An athlete takes 10 rounds of a rectangular park, 60 m long and 30 m wide. Find the total distance covered by him.

Solution:

Length of the rectangular park = 60 m

Breadth of the rectangular park = 30 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 × (60 m + 30 m)

= 2 × 90 m = 180 m

So, the distance covered by the athlete in one round is 180 m.

Therefore, distance covered in 10 rounds = 10 × 180 m = 1800m

The total distance covered by the athlete is 1800

Example2:

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 = 5m

Example3:

Find the cost of fencing a rectangular park of length 250 m and breadth 175 m at the rate of Rs 12 per meter.

Solution:

Length of the rectangular park = 250 m

Breadth of the rectangular park = 175 m

To calculate the cost of fencing we require perimeter.

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

= 2 × (250 m + 175 m)

= 2 × (425 m) = 850 m

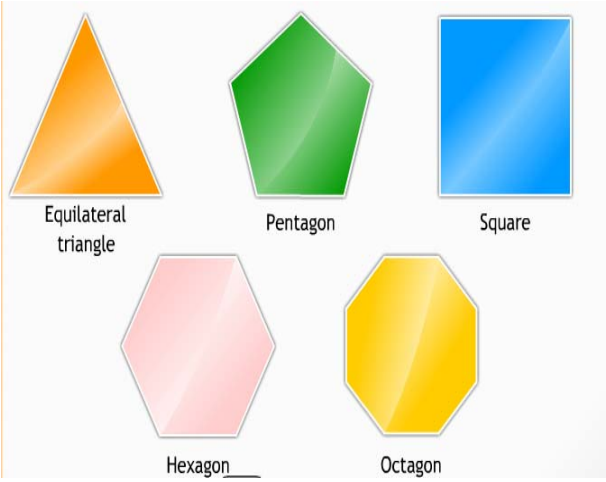
Cost of fencing 1m of park = Rs 12

Therefore, the total cost of fencing the park

= Rs 12 × 850 = Rs 10200

Perimeter of Regular Shapes

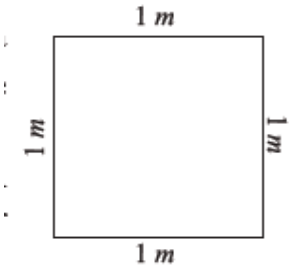
Figures having all the sides of equal length and all the angles of equal measure are known as regular closed figures. For example, an equilateral triangle, a square, a regular hexagon, etc.



Square

Perimeter of a square = 4 × length of a side

= 4 x 1= 4 m



Example:

Find the distance travelled by Sonia if she takes three rounds of a square park of side 70 m.

Solution:

Perimeter of the square park = 4 × length of a side = 4 × 70 m = 280 m

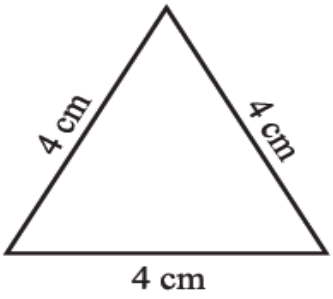
Distance covered in one round = 280 m

Therefore, distance travelled in three rounds =3 × 280m = 840m

Equilateral triangle:

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

= 3 x 4=12 cm

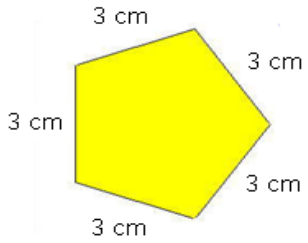


Pentagon

Perimeter of pentagon= 5 x length of a side (if all sides are equal) if not then add all length of all sides of pentagon.

Perimeter of pentagon= 5 x length of a side

= 5 x 3 cm =15 cm



Pentagon

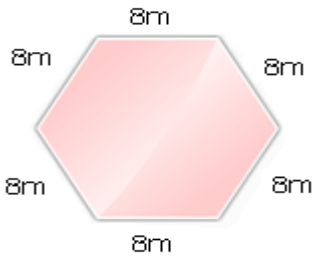
Hexagon

Perimeter of Hexagon= 6 x length of a side

Find the perimeter of a regular hexagon with each side measuring 8 m.

Solution:

Perimeter of Hexagon= 6 x 8 m= 48 m



Hexagon

Area

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

To calculate the area of a figure using a squared paper, the following conventions are adopted:

1) The area of one full square is taken as 1 sq unit. If it is a centimeter square sheet, then area of one full square will be 1 sq cm.

2) Ignore portions of the area that are less than half a square.

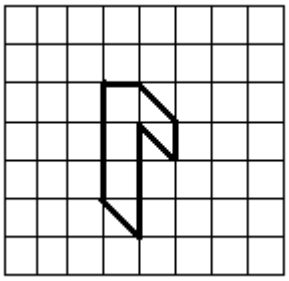
3) If more than half of a square is in a region, just count it as one square.

4) If exactly half the square is counted, take its area as 1/2 sq unit.

Example:

Find the area of the shape shown in the figure.

Solution:



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

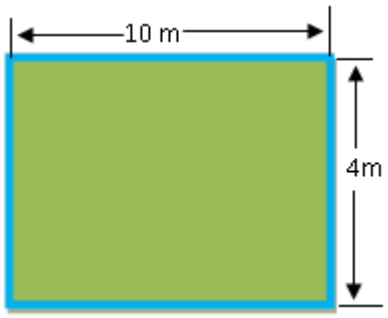
= 3 × 1/2 sq units = 3/2 sq units

Total area = 3 + 3/2 = 9/2 = 4 (1/2) sq units.

Area of a rectangle:

Area of a rectangle = length x breath

= 10 m x 4 m= 40 m^2



Example:

Find the area of a rectangle whose length and breadth are 10 cm and 3 cm respectively.

Solution:

Area of a rectangle = length x breath

= 10 cm x 3 cm= 30 cm^2

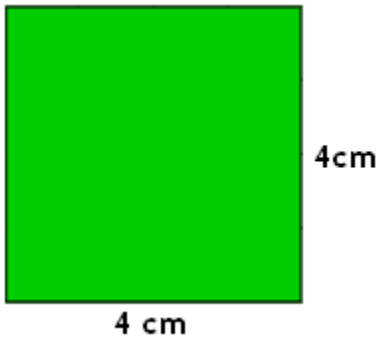
Area of a square:

Area of a square = $(side)^2$

Area of a square = $(side)^2$

= $(4\ cm)^2$

=16 cm^2



Example:

Find the area of a square plot of side 9 m.

Solution:

Side of the square = 9 m

Area of the square = side × side

= 9 m × 9 m = 81 sq m.