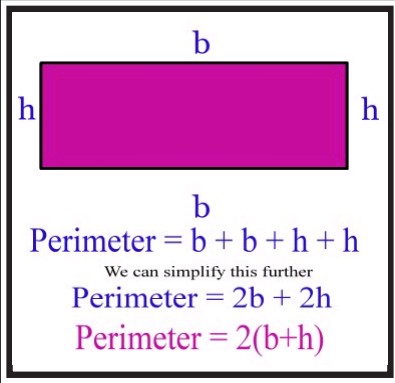


13 . PERIMETER



Syllabus -

- ↗ Vocabulary
- ↗ Perimeter of square, rectangle and triangle
- ↗ Word Problem
- ↗ Exercise
- ↗ Problems for practice

~~✂~~ VOCABULARY:-

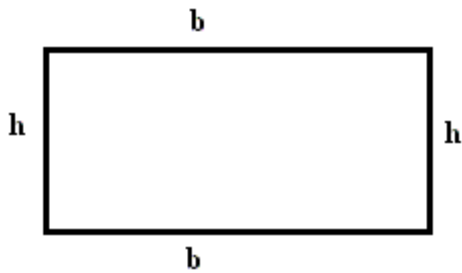
- 1) Perimeter- पेरीमीटर - परिमिती.
- 2) to find out- टू फाईंड आऊट - शोधणे, शोधून काढणे.
- 3) triangle - ट्रॅंगल - त्रिकोण.
- 4) rectangle - रेक्टॅंगल - आयत.
- 5) line segments - लाईन सेगमेंटस् - रेषाखंड.
- 6) sum of lengths - सम ऑफ लेन्थस् - लांबीची बेरीज.
- 7) perimeter of rectangle - पेरीमीटर ऑफ रेक्टॅंगल - आयताची परिमिती.
- 8) perimeter of square - पेरीमीटर ऑफ स्क्वेअर - चौरसाची परिमिती.
- 9) perimeter of triangle - पेरीमीटर ऑफ ट्रॅंगल - त्रिकोणाची परिमिती.
- 10) formulas - फॉर्म्युलाज - सुत्रे.
- 11) for finding out - फॉर फाईंडींग आऊट - शोधून काढण्यासाठी.
- 12) length and breadth - लेन्थ अँड ब्रेड्थ - लांबी व रुंदी.
- 13) sides of triangle - साईडस् ऑफ ट्रॅंगल - त्रिकोणाची बाजू.
- 14) length of rectangle - लेन्थ ऑफ रेक्टॅंगल - आयताची लांबी.
- 15) triangular plot - ट्रॅंग्युलर प्लॉट - त्रिकोणाकृती जागा.
- 16) length of wire - लेन्थ ऑफ वायर - तारेची लांबी.
- 17) round of fence - राऊंड ऑफ फेन्स - कुंपणाचे वर्तुळ.
- 18) reasoning - रिझनिंग - तर्कशक्ती, विचार.
- 19) writing the formula - रायटिंग द फॉर्म्युला - सूत्र लिहिणे.
- 20) substituting values - सबस्टीट्यूटिंग व्हॅल्यूज - किंमतीची आदलाबदल करणे.
- 21) adding - अॅडिंग - बेरीज करणे, मिळवणे.
- 22) perimeter of field - पेरीमीटर ऑफ फील्ड - शेताची परिमिती.
- 23) multiplying - मल्टीप्लायिंग - गुणाकार करणे.
- 24) rectangular garden - रेक्टॅंग्युलर गार्डन - आयताकृती बाग.
- 25) fencing wire - फॅन्सींग वायर - कुंपणाची तार.
- 26) number of rounds - नंबर ऑफ राऊंडस् - अनेक वेतोळे.
- 27) rectangular canopy - रेक्टॅंग्युलर कॅनोपी - आयताकृती छत.
- 28) to decorate - टू डेकोरेट - सुशोभीत करणे.
- 29) canopy - कॅनोप - छत
- 30) wooden strips - वूडन स्ट्रीप्स - लाकडी चीप.
- 31) window frame - विंडो फ्रेम - खिडकीची चौकट.

 **Points to Remember :**

Revision:

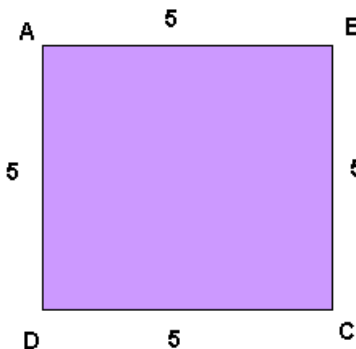
The perimeter of a figure that is bound on all sides by line segments is the sum of the lengths of those line segments or sides.

1) **Rectangle -**



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

2) **Square -**



Perimeter of square = 4 x side

3) **Triangle -**



If we take letters a, b, c for the sides of a triangle

Perimeter of a triangle = Sum of all sides of the triangle

Perimeter of a triangle = $a + b + c$

➤ **Examples -**

1) **If the length of a rectangle is 8 cm and its breadth 5 cm, then find its perimeter.**

Ans: Given - length = 8 cm,
breadth = 5 cm

$$\begin{aligned} \text{Perimeter of a rectangle} &= 2 \times \text{length} + 2 \times \text{breadth} \\ &= 2 \times 8 + 2 \times 5 \\ &= 16 + 10 \\ &= 26 \text{ cm} \end{aligned}$$

2) **Find the perimeter of a square whose side is 3.2 m.**

Ans: Given - side of square = 3.2 m

Find out - Perimeter of square

$$\begin{aligned} \text{Perimeter of square} &= 4 \times \text{side} \\ &= 4 \times 3.2 \\ &= 12.8 \text{ m} \end{aligned}$$

EXERCISE - 39

Q.1 Given below are the length and breadth of some rectangles. Find their perimeters.

1) **9 cm, 6cm**

Ans: Given - length - 9 cm, breadth - 6 cm

Find out - Perimeter of rectangle

$$\begin{aligned} \text{Perimeter of a rectangle} &= 2 \times \text{length} + 2 \times \text{breadth} \\ &= 2 \times 9 + 2 \times 6 \\ &= 18 + 12 \\ &= 30 \text{ cm} \end{aligned}$$

2) **5.2 m, 4 m**

Ans: Given - length - 5.2 cm, breadth - 4 cm

Find out - Perimeter of rectangle

$$\begin{aligned} \text{Perimeter of a rectangle} &= 2 \times \text{length} + 2 \times \text{breadth} \\ &= 2 \times 5.2 + 2 \times 4 \\ &= 10.4 + 8 \\ &= 18.4 \text{ m} \end{aligned}$$

3) **7.5 cm, 3.2 cm**

Ans: Given - length - 7.5 cm, breadth - 3.2 cm

Find out - Perimeter of rectangle

$$\begin{aligned} \text{Perimeter of a rectangle} &= 2 \times \text{length} + 2 \times \text{breadth} \\ &= 2 \times 7.5 + 2 \times 3.2 \\ &= 15 + 6.4 \\ &= 19.4 \text{ cm} \end{aligned}$$

Q.2 Find the perimeter of a square whose side is 12 cm.

Ans: Given - Side of square = 12 cm
Find out - Perimeter of a square
Perimeter of a square = $4 \times \text{side}$
 $= 4 \times 12$
 $= 48 \text{ cm}$

[\therefore Perimeter of square is 48 cm]

Q.3 Find the perimeter of a triangle whose sides are 6 cm, 9 cm and 5 cm.

Ans: Given - Sides of the triangle $a = 6 \text{ cm}$, $b = 9 \text{ cm}$, $c = 5 \text{ cm}$.

Find out - Perimeter of triangle ?
Perimeter of a triangle = Sum of all sides
 $= a + b + c$
 $= 6 + 9 + 5$
 $= 20 \text{ cm}$

[Perimeter of a triangle is 20 cm]

Q.4 Find the perimeter of triangle whose sides are 4.8 m, 10.2m, and 5.3 m.

Ans: Given - Sides of the triangle $a = 4.8 \text{ m}$, $b = 10.2 \text{ m}$, $c = 5.3 \text{ m}$.
Find out - Perimeter of triangle ?
Perimeter of a triangle = Sum of all sides
 $= a + b + c$
 $= 4.8 + 10.2 + 5.3$
 $= 20.3 \text{ m}$

[Perimeter of a triangle is 20.3 m]

WORD PROBLEMS

- 1) Read the problems carefully.
- 2) Find out - what is given and what is we have to find out.
- 3) Write accurate formula.
- 4) Calculate what you have to find with proper formula.
- 5) Write proper units.

➤ **Example -**

1) A triangular plot of land has sides of 65 m, 60 m, 32 m. It is to be fenced with four rounds of wire. What is the total length of the wire required for the purpose ?

Ans: Given -

Sides of the plot $a = 65 \text{ m}$, $b = 60 \text{ m}$ and $c = 32 \text{ m}$.

Find out -

The total length of the wire required.

Perimeter of triangle = Sum of all sides
 $= a + b + c$
 $= 65 + 60 + 32$
 $= 157 \text{ m}$

For one round of the fence, length of wire require = 157 m

For four rounds of the fence, length of wire
 $= 4 \times \text{perimeter}$
 $= 4 \times 157$
 $= 628 \text{ m}$

[628 m of wire will be required for the fence]

2) Meenu runs 8 laps around a square whose side is 80 m.

How many metres does she run every day?

Ans: Given -

Side of the square field = 80 m, Number of laps = 8

Find out - How many metres does Meenu run ?

Perimeter of square = $4 \times \text{side}$
 $= 4 \times 80$
 $= 320 \text{ m}$

Meenu runs 320 m in one lap.

In 8 laps, Meenu runs $320 \times 8 = 2560 \text{ m}$

[Meenu runs 2560 m every day]

3) A rectangular garden plot whose length is 17 m and breadth is 10 m is to be fenced. The cost of the fencing wire is Rs. 3.25 per metre. If the fence is to have three rounds of the wire, how much will be the cost of the total length of the wire required.

Ans: Given -

Length of the rectangle = 17 m

Breadth of the rectangle = 10 m

Number of rounds = 3

Cost of 1 m of wire = Rs. 3.25

Find out -

Total cost of wire.

Perimeter of the garden

$$= 2 \times \text{Length} + 2 \times \text{Breadth}$$

$$= 2 \times 17 + 2 \times 10$$

$$= 34 + 20$$

$$= 54 \text{ m}$$

Length of 3 rounds of wire

$$= 3 \times \text{perimeter}$$

$$= 3 \times 54$$

$$= 162 \text{ m}$$

$$\text{Total cost of wire} = 162 \times 3.25$$

$$= \text{Rs. } 526.50$$

[Total cost of wire is Rs. 526.50]

EXERCISE - 40

- 1) The length of rectangular canopy is 15 m and its breadth is 10 m. What length of trimming will be required to decorate the canopy along its edges ?

Ans: Given -

length - 15 m, breadth 10 m

Find out -

Perimeter of rectangle

Perimeter of a rectangle = $2 \times \text{length} + 2 \times \text{breadth}$

$$= 2 \times 15 + 2 \times 10$$

$$= 30 + 20$$

$$= 50 \text{ m}$$

[50 m of trimming will be required to decorate the canopy along its edges]

- 2) A 1.5 m square window is to be fitted with a net on wooden strips nailed to the window frame. What is the total length of wooden strips required ?

Ans: Given -

Side of the square window = 1.5 m,

Find out -

Total length of the wooden strips required ?

$$\text{Perimeter of square} = 4 \times \text{side}$$

$$= 4 \times 1.5$$

$$= 6.0 \text{ m}$$

[Total length of the wooden strips required = 6 m]

- 3) Every morning Satbir takes a walk around a rectangular garden which is 320 m long and 210 m broad. What is the distance he walks every day in one round ?

Ans: Given -

length - 320 m, breadth - 210 m

Find out -

Perimeter of rectangle

Perimeter of a rectangle = $2 \times \text{length} + 2 \times \text{breadth}$

$$= 2 \times 320 + 2 \times 210$$

$$= 640 + 420$$

$$= 1060 \text{ m}$$

[Satbir walks 1060 m daily]

- 4) What will be the cost of wire required for fencing a triangular plot of land with sides 30 m, 20 m and 25 m with 4 rounds of wire which costs Rs. 2.50 per metre ?

Ans: Given -

Sides of a triangle = a = 30m, b = 20m, c = 25m

Perimeter = Sum of all sides

$$= a + b + c$$

$$= 30 + 20 + 25$$

$$= 75 \text{ m}$$

$$\text{One round} = 75 \text{ m}$$

$$\begin{aligned}
 4 \text{ rounds} &= 75 \times 4 \\
 &= 300 \text{ m} \\
 \text{Cost of 1 m} &= \text{Rs. } 2.50 \\
 \text{Cost of 300 m} &= 2.50 \times 300 \\
 &= \text{Rs. } 750.00
 \end{aligned}$$

5) **If a border is to be attached to a mat of length 5 m 20 cm and breadth 3 m 30 cm. What is the length of the border required?**

Ans: Given -

length - 5 m 20cm, breadth 3 m 30 cm

Find out -

Perimeter of rectangle

$$\begin{aligned}
 \text{Perimeter of a rectangle} &= 2 \times \text{length} + 2 \times \text{breadth} \\
 &= 2 \times 5.20 + 2 \times 3.30 \\
 &= 10.40 + 6.60 \\
 &= 17 \text{ m}
 \end{aligned}$$

[Length of the border required is 17 m]

 **Finding the length of a side when perimeter is given -**

➤ **Example -**

1) **The perimeter of a square is 48 cm. Find the length of its side.**

Ans: Given -

Perimeter of a side = 48 cm

Find out -

Length of sides.

$$\begin{aligned}
 \text{Perimeter of square} &= 4 \times \text{side} \\
 48 &= 4 \times \text{side} \\
 \text{But, } 4 \times 12 &= 48 \\
 12 &= \text{side}
 \end{aligned}$$

[Side of the square is 12 cm]

2) **Perimeter of a rectangle is 36 cm and its length 10 cm. Find its breadth.**

Ans: Given -

length - 10cm, Perimeter = 36 cm

Find out -

breadth

$$\begin{aligned}
 \text{Perimeter of a rectangle} &= 2 \times \text{length} + 2 \times \text{breadth} \\
 36 &= 2 \times 10 + 2 \times \text{breadth} \\
 36 &= 20 + 2 \times \text{breadth} \\
 36 - 20 &= 2 \times \text{breadth} \\
 16 &= 2 \times \text{breadth} \\
 16 &= 2 \times 8 \\
 8 \text{ cm} &= \text{breadth}
 \end{aligned}$$

[The breadth of the rectangle is 8cm]

EXERCISE - 41

Q.1 The perimeter of a triangle is 50 cm. If two of its sides are 15 cm and 20 cm long, find the length of its sides.

Ans: Given -

Perimeter of triangle = 50 cm,

Sides of triangle - a=15 cm, b = 20 cm,

Find out -

c = ?

$$\begin{aligned}
 \text{Perimeter of triangle} &= \text{Sum of all sides} \\
 &= a + b + c \\
 50 &= 15 + 20 + c \\
 50 &= 35 + c \\
 50 - 35 &= c \\
 15 &= c
 \end{aligned}$$

[Length of the third side is 15 cm]

Q.2 If the perimeter of a square is 80 cm, find the length of its sides.

Ans: Given - perimeter of a square = 80 cm

Find out - Length of square ?

$$\begin{aligned}
 \text{Perimeter of square} &= 4 \times \text{side} \\
 80 &= 4 \times \text{side} \\
 \text{But, } 80 &= 4 \times 20 \\
 \text{side} &= 20 \text{ cm}
 \end{aligned}$$

[Length of square is 20 cm]

Q.3 The perimeter of a rectangle is 62 m and its breadth is 7 m. Find its length.

Ans: Given -

perimeter of a rectangle = 62 m,
breadth = 7 m

Find out -

Length of a rectangle ?

Perimeter of rectangle = $2 \times \text{length} + 2 \times \text{breadth}$

$$62 = 2 \times \text{length} + 2 \times 7$$

$$62 = 2 \times \text{length} + 14$$

$$62 - 14 = 2 \times \text{length}$$

$$48 = 2 \times \text{length}$$

$$\text{But, } 48 = 2 \times 24$$

$$\text{length} = 24 \text{ cm}$$

[**Length of reactangle is 24 cm**]

Q.4 The perimeter of a triangle is 55 cm. One of its sides is 15 cm. If the other two sides are equal, find their length.

Ans: Given -

perimeter of a triangle = 55 cm,
one side = a = 15 cm

Find out -

two sides of triangle are of equal length i.e.

$b = ?$, $b = ?$

Perimeter of a triangle = Sum of all sides

$$= a + b + b$$

$$55 = 15 + 2b$$

$$55 - 15 = 2b$$

$$40 = 2b$$

$$\text{but, } 40 = 2 \times 20$$

side = 20 cm

[**Sides of triangle is 20cm each**]

Q.5 The perimeter of a rectangular pool is 100 m and its length is 30 m. Find its breadth.

Ans: Given -

Perimeter of a rectangular pool = 100m,
length = 30 m

Find out -

length

Perimeter of a rectangle = $2 \times \text{length} + 2 \times \text{breadth}$

$$100 = 2 \times 30 + 2 \times \text{breadth}$$

$$100 = 60 + 2 \times \text{breadth}$$

$$100 - 60 = 2 \times \text{breadth}$$

$$40 = 2 \times \text{breadth}$$

$$40 = 2 \times 20$$

$$20 \text{ cm} = \text{breadth}$$

[**The breadth of the rectangle is 20 cm**]

Q.6 If the perimeter of a square room is 16 m, what is the length of each of its sides?

Ans: Given -

Perimeter of a square = 16 m

Find out -

length = ?

Perimeter of a square = $4 \times \text{side}$

$$16 = 4 \times \text{side}$$

$$\text{But, } 16 = 4 \times 4$$

$$\text{Length} = 4 \text{ m}$$

[**Length of square is 4 m**]

Q.7 A wire is bent into a rectangle of length 50 cm and breadth 30 cm. If the wire were straightened then bend into a square, how many centimetres would each of its sides measure ?

Ans: Given -

Length = 50 cm, Breadth = 30 cm,

Find out -

Side of square ?

Perimeter = $2 \times \text{length} + 2 \times \text{breadth}$

$$= 2 \times 50 + 2 \times 30$$

$$= 100 + 60$$

$$= 160 \text{ cm}$$

Perimeter of rectangle = Perimeter of square

$$160 = 4 \times \text{side}$$

$$\text{But, } 160 = 4 \times 40$$

$$\text{Side} = 40 \text{ cm}$$

[**Each side of square is 40 cm**]

