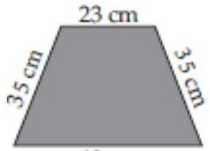
Class.6.Maths Solution(By: Prashant kr)

Ch.10.Mensuration

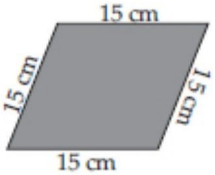
Ex-10.1

Q 1.Find the perimeter of each of the following figures :

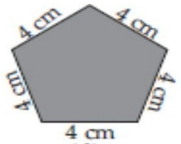
(a)



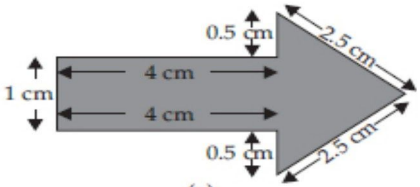
(b)



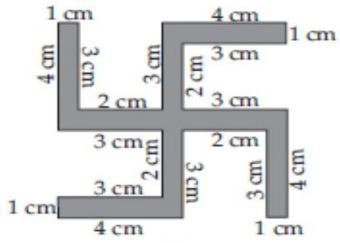
(c)



(d)



(e)



(f)

SOLUTION:

(a) Perimeter = Sum of all the sides

= 4 cm + 2 cm + 1 cm + 5 cm = 12 cm

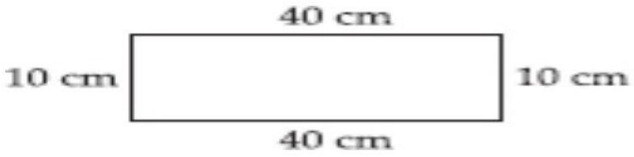
(b) Perimeter = Sum of all the sides

= 23 cm + 35 cm + 40 cm + 35 cm = 133 cm

(c) Perimeter = Sum of all the sides

= 15 cm + 15 cm + 15 cm + 15 cm = 60 cm
(d) Perimeter = Sum of all the sides
= 4 cm + 4 cm + 4 cm + 4 cm + 4 cm = 20 cm
(e) Perimeter = Sum of all the sides
= 1 cm + 4 cm + 0.5 cm + 2.5 cm + 2.5 cm
+ 0.5 cm + 4 cm = 15 cm
(f) Perimeter = Sum of all the sides
= 4 cm + 1 cm + 3 cm + 2 cm + 3 cm
+ 4 cm + 1 cm + 3 cm + 2 cm + 3 cm + 4 cm
+ 1 cm + 3 cm + 2 cm + 3 cm + 4 cm
+ 1 cm + 3 cm + 2 cm + 3 cm
= 52 cm

Q 2.The lid of a rectangular box of sides 40 cm by 10 cm is sealed all round with tape. What is the length of the tape required?



SOLUTION:
Total length of tape required
= Perimeter of rectangle
= 2 × (length + breadth)
= 2 × (40 + 10) cm
= 2 × 50 cm = 100 cm = 1 m
Thus, the total length of tape required is 100 cm or 1 m.

Q 3.A table-top measures 2 m 25 cm by 1 m 50 cm. What is the perimeter of the table-top?
SOLUTION:
Length of table-top = 2 m 25 cm = 2.25 m
Breadth of table-top = 1 m 50 cm = 1.50 m
Perimeter of table-top = 2 × (length + breadth)
= 2 × (2.25 + 1.50) m = 2 × 3.75 m = 7.50 m
Thus, perimeter of table-top is 7.5 m.

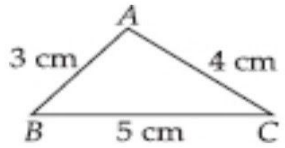
Q 4.What is the length of the wooden strip required to frame a photograph of length and breadth 32 cm and 21 cm respectively?
SOLUTION:
Length of wooden strip
= Perimeter of photograph
= 2 × (length + breadth)
= 2 × (32 + 21) cm = 2 × 53 cm = 106 cm
Thus, the length of the wooden strip required is 106 cm.

Q 5.A rectangular piece of land measures 0.7 km by 0.5 km. Each side is to be fenced with 4 rows of wires. What is the length of the wire needed?
SOLUTION:

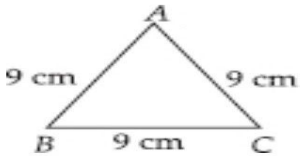
Since, 4 rows of wires are needed. Therefore, the total length of wire is equal to 4 times the perimeter of land.
Perimeter of land = 2 × (length + breadth)
= 2 × (0.7 + 0.5) km = (2 × 1.2) km = 2.4 km
= 2.4 × 1000 m = 2400 m
Thus, the length of wire
= 4 × 2400 m = 9600 m = 9.6 km

Q 6.Find the perimeter of each of the following shapes :
(a)A triangle of sides 3 cm, 4 cm and 5 cm.
(b)An equilateral triangle of side 9 cm.
(c)An isosceles triangle with equal sides 8 cm each and third side 6 cm.

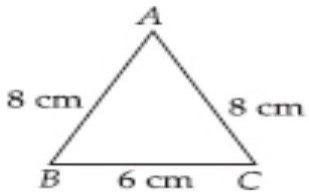
SOLUTION:
(a)



Perimeter of ΔABC
= AB + BC + CA = 3 cm + 5 cm + 4 cm
= 12 cm
(b)



Perimeter of equilateral ΔABC
= 3 × side
= 3 × 9 cm
= 27 cm
(c)



Perimeter of ΔABC
= AB + BC + CA
= 8 cm + 6 cm + 8 cm
= 22 cm

Q 7.Find the perimeter of a triangle with sides measuring 10 cm, 14 cm and 15 cm.
SOLUTION:
Perimeter of triangle
= Sum of all three sides

= 10 cm + 14 cm + 15 cm = 39 cm

Thus, perimeter of triangle is 39 cm.

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

SOLUTION:

Perimeter of regular hexagon

= 6 × length of one side = 6 × 8 m = 48 m

Thus, the perimeter of regular hexagon is 48 m.

Q 9.Find the side of the square whose perimeter is 20 m.

SOLUTION:

Perimeter of square = 4 × side

⇒ 20 m = 4 × side

⇒ side = 20/4 m

= 5m

Thus, the side of square is 5 m.

Q 10.The perimeter of a regular pentagon is 100 cm. How long is its each side?

SOLUTION:

Perimeter of regular pentagon = 5 × side

⇒ 100 cm = 5 × side

⇒ side =100/5 cm

= 20 cm

Thus, the side of regular pentagon is 20 cm.

Q 11.A piece of string is 30 cm long. What will be the length of each side if the string is used to form:

(a) a square?

(b) an equilateral triangle?

(c) a regular hexagon?

SOLUTION:

Length of string = Perimeter of each shape

(a) Perimeter of square = 4 × side

⇒ 30 cm = 4 × side

⇒ side =30/4 cm

= 7.5 cm

Thus, the length of each side of square will be 7.5 cm.

(b) Perimeter of equilateral triangle = 3 × side

⇒ 30 cm = 3 × side

⇒ side = 30/3 cm

= 10 cm

Thus, the length of each side of equilateral triangle will be 10 cm.

(c) Perimeter of regular hexagon = 6 × side

⇒ 30 cm = 6 × side

⇒ side = 30/6cm

= 5 cm

Thus, the length of each side of regular hexagon will be 5 cm.

Q 12.Two sides of a triangle are 12 cm and 14 cm. The perimeter of the triangle is 36 cm. What is its third side?

SOLUTION:

Let the length of third side be x cm.

Length of other two sides are 12 cm and 14 cm.

Now, perimeter of triangle = 36 cm

$\Rightarrow 12 + 14 + x = 36 \Rightarrow 26 + x = 36$

$\Rightarrow x = 36 - 26 \Rightarrow x = 10$

Thus, the length of third side is 10 cm.

Q 13.Find the cost of fencing a square park of side 250 m at the rate of Rs 20 per metre.

SOLUTION:

Side of square park = 250 m

Perimeter of square park = 4 × side

= 4 × 250 m = 1000 m

Since, cost of fencing for 1 metre = Rs 20

Therefore, cost of fencing for 1000 metres

= Rs 20 × 1000 = Rs 20,000

Q 14.Find the cost of fencing a rectangular park of length 175 m and breadth 125 m at the rate of

Rs 12 per metre.

SOLUTION:

Length of rectangular park = 175 m

Breadth of rectangular park = 125 m

Perimeter of park = 2 × (length + breadth)

= 2 × (175 + 125) m

= 2 × 300 m = 600 m

Since, cost of fencing park for 1 metre = Rs 12

Therefore, cost of fencing park for 600 m

= Rs 12 × 600 = Rs 7,200

Q 15.Sweety runs around a square park of side 75 m. Bulbul runs around a rectangular park with length 60 m and breadth 45 m. Who covers less distance?

SOLUTION:

Distance covered by Sweety

= Perimeter of square park = 4 × side

= 4 × 75 m = 300 m

Thus, distance covered by Sweety is 300 m.

Now, distance covered by Bulbul

= Perimeter of rectangular park

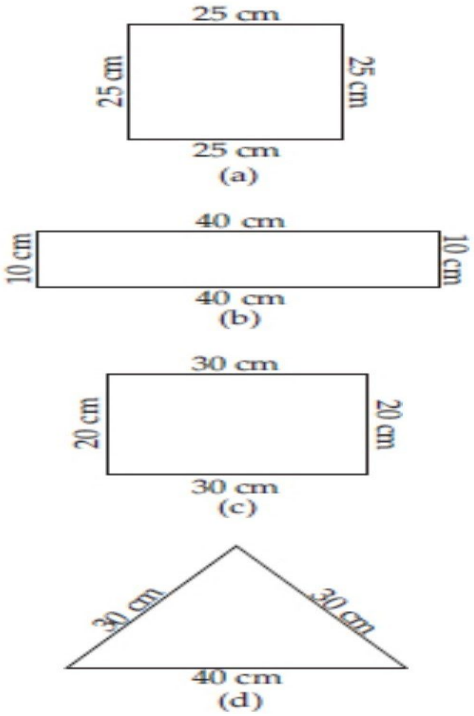
= 2 × (length + breadth)

= 2 × (60 + 45) m = 2 × 105 m = 210 m

Thus, Bulbul covers a distance of 210 m.

So, Bulbul covers less distance.

Q 16.What is the perimeter of each of the following figures? What do you infer from the answers?



SOLUTION:

(a) Perimeter of square = 4 × side

= 4 × 25 cm = 100 cm

(b) Perimeter of rectangle

= 2 × (length + breadth)

= 2 × (40 + 10) cm = 2 × 50 cm = 100 cm

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

= 2 × (30 + 20) cm = 2 × 50 cm = 100 cm

(c) Perimeter of triangle = Sum of all sides

= 30 cm + 30 cm + 40 cm = 100 cm

Thus, all the figures have same perimeter.

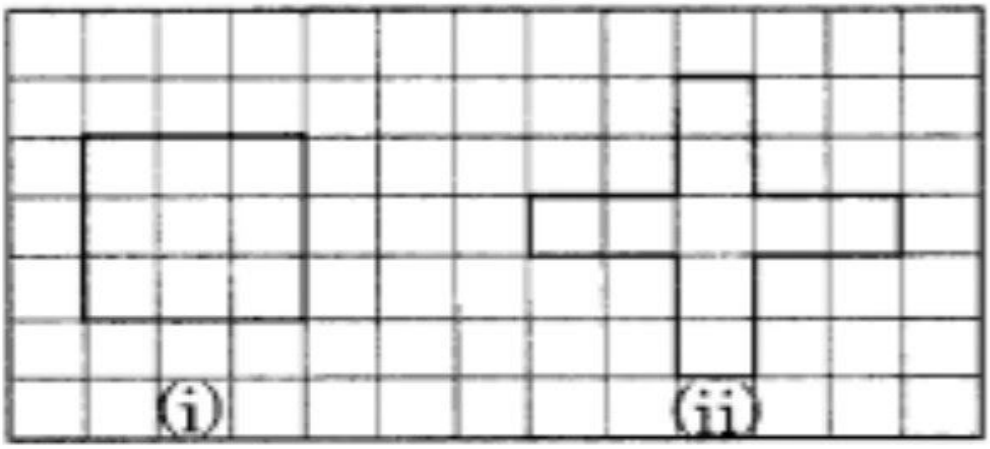
Q 17.Avneet buys 9 square paving slabs, each with a side of ½ m. He lays them in the form of a square.

(a) What is the perimeter of his arrangement [see fig. (i)]?

(b) Shari does not like his arrangement. She gets him to lay them out like a cross. What is the perimeter of her arrangement [see fig. (ii)]?

(c) Which has greater perimeter?

(d) Avneet wonders if there is a way of getting an even greater perimeter. Can you find a way of doing this? (The paving slabs must meet along complete edges i.e. they cannot be broken.)



SOLUTION:

(a) Side of one small square = ½ m

∴ Side of given square = ½ m+ ½ m +½ m

= 3/2 m

Perimeter of square = 4 × side

= 4x3/2 m = 6 m

(b) Perimeter of given figure

= sum of all sides = 20 × ½ m = 10 m

(c) The cross arrangement has greater perimeter.

(d) It is not possible to determine the arrangement with perimeter greater than 10 m.