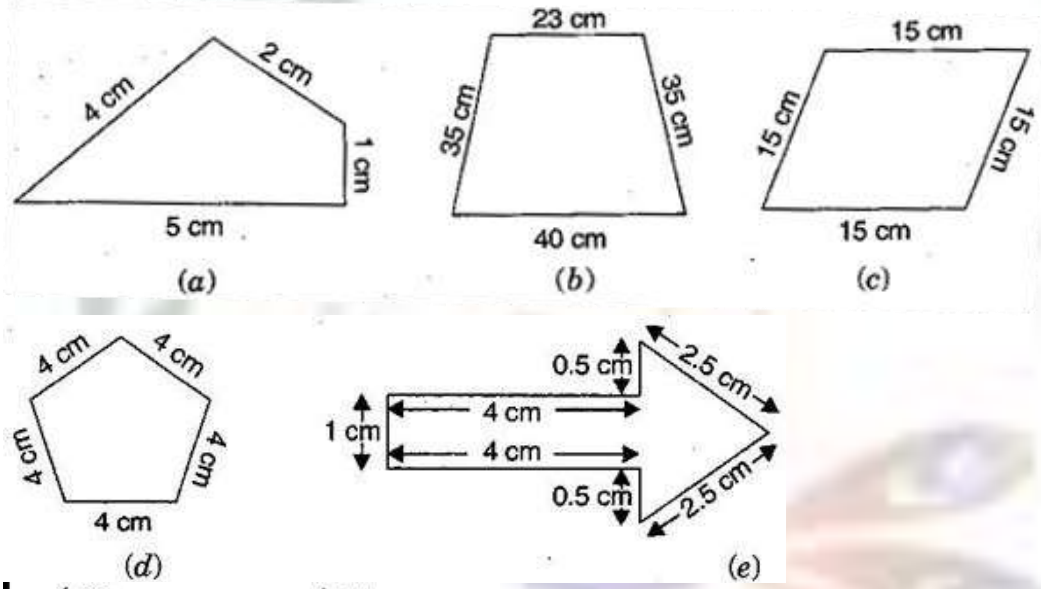
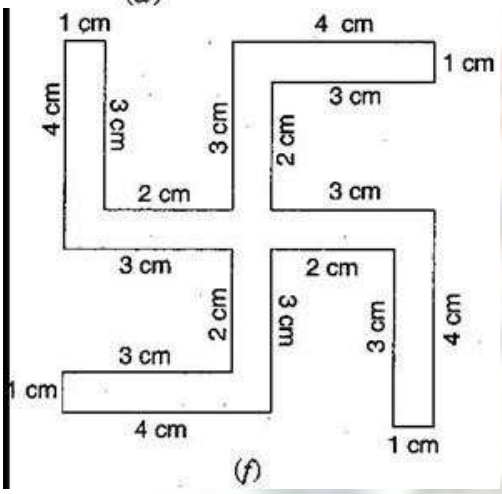
Chapter: 10 **Mensuration** **Sub : Maths**

Ex. 10.1

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





Answer: (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

(b) = 15 cm + 15 cm + 15 cm + 15 cm = 60 cm Perimeter = Sum of all the sides

= 4 cm + 4 cm + 4 cm + 4 cm + 4 cm = 20 cm

(c) 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

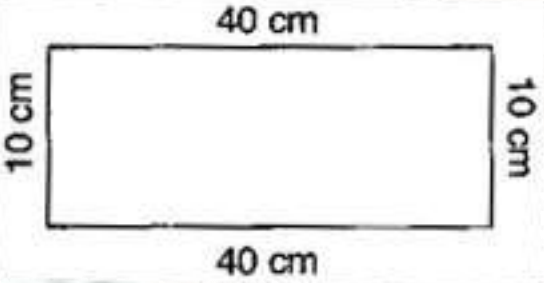
(d) Perimeter = Sum of all the sides

= 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

Question 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?

Answer: Total length of tape required = Perimeter of rectangle



= 2 (length + breadth)

= 2 (40 + 10)

= 2 x 50

= 100 cm = 1 m

Thus, the total length of tape required is 100 cm or 1 m.

Question 3. A table-top measures 2 m 25 cm by 1 m 50 cm. What is the perimeter of the table-top?

Answer: 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 x (length + breadth)

= 2 x (2.25 + 1.50)

= 2 x 3.75 = 7.50 m

Thus, perimeter of table top is 7.5 m.

Question 4. What is the length of the wooden strip required to frame a photograph of length 32 cm and breadth 21 cm respectively?

Answer: Length of wooden strip = Perimeter of photograph Perimeter of

photograph = 2 x (length + breadth)

= 2 (32 + 21)

= 2 x 53 cm = 106 cm

Thus, the length of the wooden strip required is 106 cm.

Question 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?

Answer: Since the 4 rows of wires are needed. Therefore the total length of wires is equal to 4 times the perimeter of rectangle.

Perimeter of rectangular piece of land = 2 x (length + breadth)

= 2 x (0.7 + 0.5) = 2 x 1.2 = 2.4 km

= 2.4 x 1000 m = 2400 m

Thus, the length of wire = 4 x 2400 = 9600 m = 9.6 km

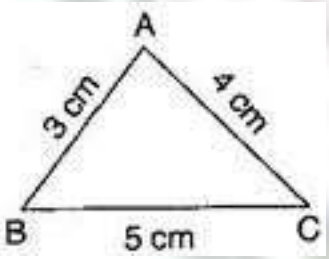
Question 6. Find the perimeter of each of the following shapes:

(a) A triangle of sides 3 cm, 4 cm and 5 cm.

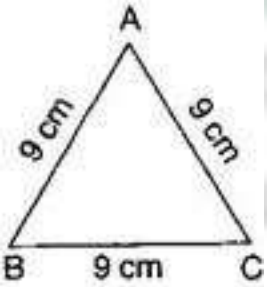
(b) An equilateral triangle of side 9 cm.

(c) An isosceles triangle with equal sides 8 cm each and third side 6 cm.

Answer: (a) Perimeter of ΔABC = AB + BC + CA = 3 cm + 5 cm + 4 cm = 12 cm

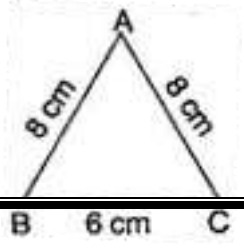


Perimeter of equilateral ΔABC = side



= 3 x 9 cm = 27 cm

(b) Perimeter of ΔABC = AB + BC + CA



= 8 cm + 6 cm + 8 cm = 22 cm

Question 7. Find the perimeter of a triangle with sides measuring 10 cm, 14 cm and 15 cm.

Answer: Perimeter of triangle = Sum of all three sides

= 10 cm + 14 cm + 15 cm = 39 cm Thus,

perimeter of triangle is 39 cm.

Question 8. Find the perimeter of a regular hexagon with each side measuring 8 cm. Answer: Perimeter of Hexagon = 6 x length of one side

= 6 x 8 m = 48 m

Thus, the perimeter of hexagon is 48 m.

Question 9. Find the side of the square whose perimeter is 20 m. Answer:

Perimeter of square = 4 x side

$\Rightarrow$ 20 = 4 x side

$\Rightarrow$ side = $\frac{20}{4}$ = 5cm

Thus, the side of square is 5 cm.

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

Answer: Perimeter of regular pentagon = 100 cm 5 x side

$\Rightarrow$ = 100 cm

$\Rightarrow$ side = $\frac{100}{5}$ = 20 cm

Thus, the side of regular pentagon is 20 cm.

Question 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?

Answer: Length of string = Perimeter of each figure

(a) Perimeter of square = 30 cm 4 x

$\Rightarrow$ side = 30 cm

$\frac{30}{4}$

$\Rightarrow$ side = = 7.5 cm

Thus, the length of each side of square is 7.5 cm.

(b) Perimeter of equilateral triangle = 30 cm 3 x

$\Rightarrow$ side = 30 cm

$\Rightarrow$ side = $\frac{30}{3}$ = 10 cm

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

(c) Perimeter of hexagon = 30 cm 6 x

$\Rightarrow$ side = 30 cm

$\Rightarrow$ side = $\frac{30}{6}$ = 5 cm

Thus, the length of each side of hexagon is 5 cm.

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

Answer: Let the length of third side be x

cm

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

Now, Perimeter of triangle = 36 cm

$\Rightarrow 12 + 14 + x = 36$

$\Rightarrow 26 + x = 36$

$\Rightarrow x = 36 - 26$

$\Rightarrow x = \ 10$ cm

Thus, the length of third side is 10 cm.

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

Answer: Side of square = 250 m

Perimeter of square = 4 x side

= 4 x 250 = 1000 m

Since, cost of fencing of per meter = Rs. 20
Therefore, cost of fencing of 1000 meters = 20 x 1000 = = Rs. 20,000

Question 14. Find the cost of fencing a rectangular park of length 175 m and breadth 125 m at the rate of Rs. 12 per meter.

Answer: Length of rectangular park = 175 m

Breadth of rectangular park = 125 m Perimeter
of park = 2 x (length + breadth)
= 2 x (175 + 125)
= 2 x 300 = 600 m

Since, cost of fencing park per meter = = Rs. 12
Therefore, cost of fencing park of 600 m = 12 x 600 = Rs. 7,200

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

Answer: Distance covered by Sweety = Perimeter of square park Perimeter of
square = 4 x side
= 4 x 75 = 300 m

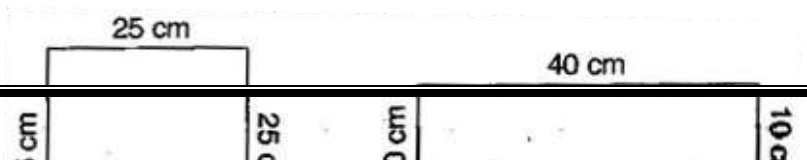
Thus, distance covered by Sweety is 300 m.

Now, distance covered by Bulbul = Perimeter of rectangular park Perimeter
of rectangular park = 2 x (length + breadth)

= 2 x (60 + 45)
= 2 x 105 = 210 m

Thus, Bulbul covers the distance of 210 m. So,
Bulbul covers less distance.

Question 16. What is the perimeter of each of the following figures? What do you infer from the answer?



Answer: (a) Perimeter of square = 4 x side
= 4 x 25 = 100 cm

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

= 2 x (40 + 10)

= 2 x 50 = 100 cm

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

= 2 x (30 + 20)

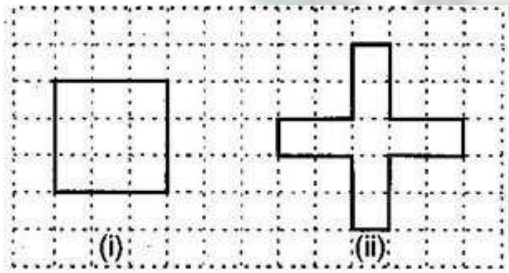
= 2 x 50 = 100 cm

(d) Perimeter of triangle = Sum of all sides

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

Thus, all the figures have same perimeter.

Question 17. Avneet buys 9 square paving slabs, each with a side $\frac{1}{2}$ m. He lays them in the form of a square



(a) What is the perimeter of his arrangement?

(b) Shari does not like his arrangement. She gets him to lay them out like a cross. What is the perimeter of herarrangement?

(c) Which has greaterperimeter?

(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.)

Answer: (a) 6 m

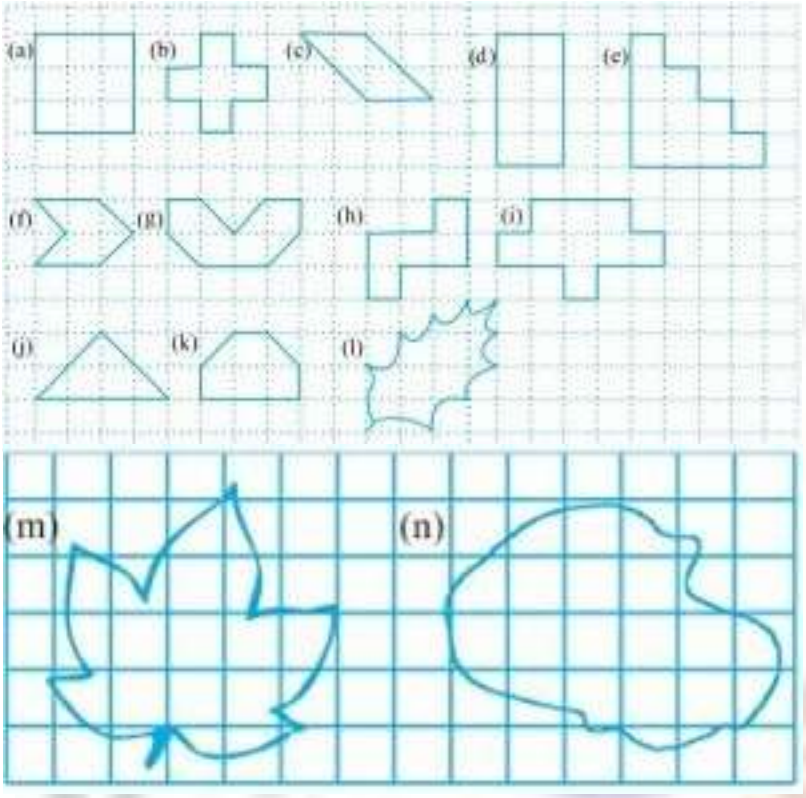
(b) 10 m

(c) Second arrangement has greater perimeter.

(d) Yes, if all the squares are arranged in row, the perimeter be 10 cm.

Ex. 10.2

Question 1. Find the areas of the following figures by counting squares:



Answer: (a) Number of filled square = 9 Area covered by squares = 9 x 1 = 9 sq. units

(b) Number of filled squares = 5
Area covered by filled squares = 5 x 1 = 5 sq. units

(c) Number of full filled squares = 2 Number of half filled squares = 4

Area covered by full filled squares = 2 x 1 = 2 sq. units
And Area covered by half filled squares = 1/2 x 4 = 2 sq. units Total area = 2 + 2 = 4 sq. units

(d) Number of filled squares = 8
Area covered by filled squares = 8 x 1 = 8 sq. units

(e) Number of filled squares = 10
Area covered by filled squares = 10 x 1 = 10 sq. units

(f) Number of full filled squares = 2 Number of half filled squares = 4

Area covered by full filled squares = 2 x 1 = 2 sq. units
And Area covered by half filled squares = 1/2 x 4 = 2 sq. units Total area = 2 + 2 = 4 sq.units

(g) Number of full filled squares = 4 Number of half filled squares = 4

Area covered by full filled squares = 4 x 1 = 4 sq. units
And Area covered by half filled squares = 1/2 x 4 = 2 sq. units Total area = 4 + 2 = 6 sq. units

(h) Number of filled squares = 5
Area covered by filled squares = 5 x 1 = 5 sq. units

(i) Number of filled squares = 9
Area covered by filled squares = 9 x 1 = 9 sq. units

(j) Number of full filled squares = 2 Number of half filled squares = 4

Area covered by full filled squares = 2 x 1 = 2 sq. units
And Area covered by half filled squares = 1/2 x 4 = 2 sq. units Total area = 2 + 2 = 4 sq. units

(k) Number of full filled squares = 4 Number of half filled squares = 2

Area covered by full filled squares = 4 x 1 = 4 sq. units

And Area covered by half filled squares = 1/2 x 2 = 1 sq. units Total area = 4 + 1 = 5 sq. units

(l) Number of full filled squares = 3

Number of half filled squares = 10
Area covered by full filled squares = 3 x 1 = 3 sq. units
And Area covered by half filled squares = 1/2 x 10 = 5 sq. units Total area = 3 + 5 = 8 sq. units

(m) Number of full filled squares = 7 Number of half filled squares = 14

Area covered by full filled squares = 7 x 1 = 7 sq. units
And Area covered by half filled squares = 1/2 x 14 = 7 sq. units Total area = 7 + 7 = 14 sq. units

(n) Number of full filled squares = 10 Number of half filled squares = 16

Area covered by full filled squares = 10 x 1 = 10 sq. units
And Area covered by half filled squares = 1/2 x 16 = 8 sq. units Total area = 10 + 8 = 18 sq. units.

Ex. 10.3

Question 1. Find the areas of the rectangles whose sides are:

(a) 3 cm and 4 cm

(b) 12 m and 21 m

(c) 2 km and 3 km

(d) 2 m and 70 cm

Answer: (a) Area of rectangle = length x breadth

= 3 cm x 4 cm = 12 cm^2

(b) Area of rectangle = length x breadth

= 12 m x 21 m = 252 m^2

(c) Area of rectangle = length x breadth

= 2 km x 3 km = 6 km^2

(d) Area of rectangle = length x breadth

= 2 m x 70 cm = 2 m x 0.7 m = 1.4 m^2

Question 2. Find the areas of the squares whose sides are:

(a) 10 cm (b) 14 cm (c) 5 m

Answer:(a) Area of square = side x side = 10 cm x 10 cm = 100 cm^2

(b) Area of square = side x side = 14 cm x 14 cm = 196 cm^2

(c) Area of square = side x side = 5 m x 5 m = 25 m^2

Question 3. The length and the breadth of three rectangles are as given below:

(a) 9 m and 6 m
(b) 17 m and 3 m

(c) 4 m and 14 m

Which one has the largest area and which one has the smallest?

Answer: (a) Area of rectangle = length x breadth = 9 m x 6 m = 54 m^2

(b) Area of rectangle = length x breadth= 3 m x 17 m = 51 m^2

(c) Area of rectangle = length x breadth= 4 m x 14 m = 56 m^2

Thus, the rectangle (c) has largest area, i.e. 56 m^2 and rectangle (b) has smallest area, i.e., 51 m^2.

Question 4. The area of a rectangular garden 50 m long is 300 m^2, find the width of the garden.

Answer: Length of rectangle = 50 m and Area of rectangle = 300 m^2 Since, Area of

rectangle = length x breadth

Therefore, Breadth = $\frac{\text{Area of rectangle}}{\text{Length}} = \frac{300}{50}$ = 6m

Thus, the breadth of the garden is 6 m.

Question 5. What is the cost of tiling a rectangular plot of land 500 m long and 200 m wide at the rate of Rs. 8 per hundred sq. m?

Answer: Length of land = 500 m and Breadth of land = 200 m
Area of land = length x breadth = 500 m x 200 m = 1,00,000 m^2
∵ Cost of tiling 100 sq. m of land = Rs. 8

∴ Cost of tilling 1,00,000 sq. m of land = $\frac{8}{100} * 100000$ = Rs. 8000

Question 6. A table-top measures 2 m by 1 m 50 cm. What is its area in square meters?
Answer: Length of table = 2 m and breadth of table = 1 m 50 cm = 1.50 m