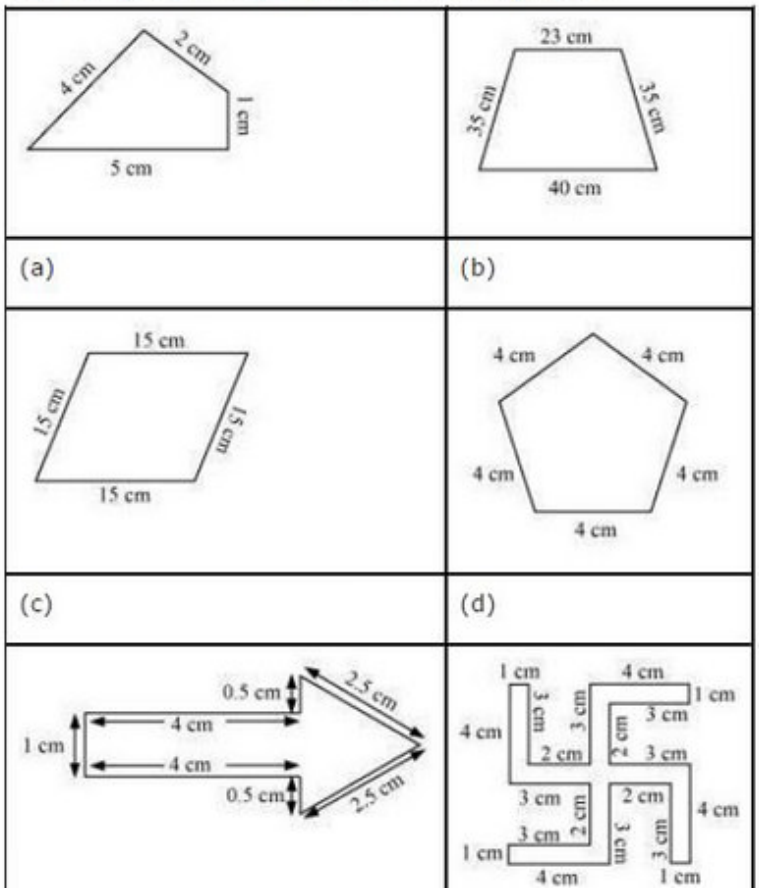
NCERT SOLUTIONS FOR CLASS 6 MATHS MENSURATION
EXERCISE 10.1

Question 1:

Find the perimeter of each of the following figures:



Answer:

Perimeter of a polygon is equal to the sum of the lengths of all sides of that polygon.

(a) Perimeter = (4 + 2 +1 + 5) cm = 12 cm

(b) Perimeter = (23 + 35 + 40 + 35) cm = 133 cm

(c) Perimeter = (15 + 15 + 15 + 15) cm = 60 cm

(d) Perimeter = (4 + 4 + 4 + 4 + 4) cm = 20 cm

(e) Perimeter = (1 + 4 + 0.5 + 2.5 + 2.5 + 0.5 + 4) cm = 15 cm

(f) Perimeter = (1 + 3 + 2 + 3 + 4 + 1 + 3 + 2 + 3 + 4 + 1 + 3 + 2 + 3 + 4 + 1 + 3 + 2 + 3 + 4) = 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:

Length (l) of rectangular box = 40 cm

Breadth (b) of rectangular box = 10 cm

Length of tape required = Perimeter of rectangular box

= 2 (l + b) = 2(40 + 10) = 100 cm

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 (l) of table-top = 2 m 25 cm = 2 + 0.25 = 2.25 m

Breadth (b) of table-top = 1 m 50 cm = 1 + 0.50 = 1 .50 m

Perimeter of table-top = 2 (l + b)

= 2 × (2.25 + 1.50)

= 2 × 3.75 = 7.5 m

Question 4:

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

Answer:

Length (l) of photograph = 32 cm

Breadth (b) of photograph = 21 cm

Length of wooden strip required = Perimeter of Photograph

= 2 × (l + b)

= 2 × (32 + 21) = 2 × 53 = 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:

Length (l) of land = 0.7 km

Breadth (b) of land = 0.5 km

Perimeter = 2 × (l + b)

= 2 × (0.7 + 0.5) = 2 × 1.2 = 2.4 km

Length of wire required = 4 × 2.4 = 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 = (3 + 4 + 5) cm = 12 cm

(b) Perimeter of an equilateral triangle = 3 × Side of triangle

= (3 × 9) cm = 27 cm

(c) Perimeter = (2 × 8) + 6 = 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 the lengths of all sides of the triangle

Perimeter = 10 + 14 + 15 = 39 cm

Question 8:

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

Answer:

Perimeter of regular hexagon = 6 × Side of regular hexagon

Perimeter of regular hexagon = 6 × 8 = 48 m

Question 9:

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

Answer:

Perimeter of square = 4 × Side

20 = 4 × Side

$$\text{Side} = \frac{20}{4} = 5 \text{ m}$$

Question 10:

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

Answer:

Perimeter of regular pentagon = 5 × Length of side

100 = 5 × Side

$$\text{Side} = \frac{100}{5} = 20 \text{ cm}$$

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?

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(a) a square?

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(c) a regular hexagon?

Answer:

(a) Perimeter = 4 × Side

30 = 4 × Side

$$\text{Side} = \frac{30}{4} = 7.5 \text{ cm}$$

(b) Perimeter = 3 × Side

30 = 3 × Side

$$\text{Side} = \frac{30}{3} = 10 \text{ cm}$$

(c) Perimeter = 6 × Side

30 = 6 × Side

$$\text{Side} = \frac{30}{6} = 5 \text{ cm}$$

Question 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?

Answer:

Perimeter of triangle = Sum of all sides of the triangle

36 = 12 + 14 + Side

36 = 26 + Side

Side = 36 − 26 = 10 cm

Hence, the third side of the triangle is 10 cm.

Question 13:

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

Answer:

Length of fence required = Perimeter of the square park

= 4 × Side

= 4 × 250 = 1000 m

Cost for fencing 1 m of square park = Rs 20

Cost for fencing 1000 m of square park = 1000 × 20

= Rs 20000

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 metre.

Answer:

Length (l) of rectangular park = 175 m

Breadth (b) of rectangular park = 125 m

Length of wire required for fencing the park = Perimeter of the park

= 2 × (l + b)

= 2 × (175 + 125)

= 2 × 300

= 600 m

Cost for fencing 1 m of the park = Rs 12

Cost for fencing 600 m of the square park = 600 × 12

= Rs 7200

Question 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?

Answer:

Distance covered by Sweety = 4 × Side of square park

= 4 × 75 = 300 m

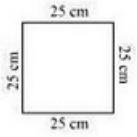
Distance covered by Bulbul = 2 × (60 + 45)

= 2 × 105 = 210 m

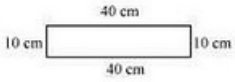
Therefore, Bulbul covers less distance.

Question 16:

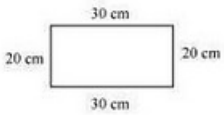
What is the perimeter of each of the following figures? What do you infer from the answers?



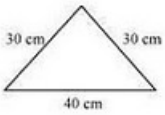
(a)



(b)



(c)



(d)

Answer:

(a) Perimeter of square = 4 × 25 = 100 cm

(b) Perimeter of rectangle = 2 × (10 + 40) = 100 cm

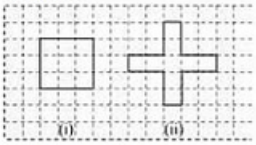
(c) Perimeter of rectangle = 2 × (20 + 30) = 100 cm

(d) Perimeter of triangle = 30 + 30 + 40 = 100 cm

It can be inferred that all the figures have the same perimeter.

Question 17:

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



(a) What is the perimeter of his arrangement [figure (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 [figure (ii)]?

(c) Which has greater perimeter?

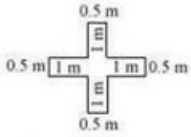
(d) Avneet wonders if there is a way of getting an even greater perimeter. Can you find a way of doing this? (The paving slabs must meet along complete edges i.e. they cannot be broken.)

Answer:

(a) Side of square = $\left(3\times\frac{1}{2}\right)\text{m} = \frac{3}{2}\text{ m}$

Perimeter of square = $4\times\frac{3}{2} = 6\text{ m}$

(b) Perimeter of cross = 0.5 + 1 + 1 + 0.5 + 1 + 1 + 0.5 + 1 + 1 + 0.5 + 1 + 1 = 10 m



(c) The arrangement in the form of a cross has a greater perimeter.

(d) Arrangements with perimeters greater than 10 m cannot be determined.

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