

Mathematics

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(Chapter – 10) (Mensuration)
(Class – VI)

Exercise 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 1:

- (a) Area of rectangle = length x breadth
= 3 cm x 4 cm = 12 cm²
(b) Area of rectangle = length x breadth
= 12 m x 21 m = 252 m²
(c) Area of rectangle = length x breadth
= 2 km x 3 km = 6 km²
(d) Area of rectangle = length x breadth
= 2 m x 70 cm = 2 m x 0.7 m = 1.4 m²

Question 2:

Find the areas of the squares whose sides are:

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

Answer 2:

- (a) Area of square = side x side = 10 cm x 10 cm = 100 cm²
(b) Area of square = side x side = 14 cm x 14 cm = 196 cm²
(c) Area of square = side x side = 5 m x 5 m = 25 m²

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 3:

- (a) Area of rectangle = length x breadth = 9 m x 6 m = 54 m²
(b) Area of rectangle = length x breadth = 3 m x 17 m = 51 m²
(c) Area of rectangle = length x breadth = 4 m x 14 m = 56 m²
Thus, the rectangle (c) has largest area, and rectangle (b) has smallest area.

Question 4:

The area of a rectangle garden 50 m long is 300 m², find the width of the garden.

Answer 4:

Length of rectangle = 50 m and Area of rectangle = 300 m²

Since, Area of rectangle = length x breadth

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

Thus, the breadth of the garden is 6 m.

Question 5:

What is the cost of tilling a rectangular plot of land 500 m long and 200 m wide at the rate of ₹8 per hundred sq. m?

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Answer 5:

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 m²

∴ Cost of tilling 100 sq. m of land = ₹ 8

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

Question 6:

A table-top measures 2 m by 1 m 50 cm. What is its area in square meters?

Answer 6:

Length of table = 2 m

Breadth of table = 1 m 50 cm = 1.50 m

Area of table = length x breadth
= 2 m x 1.50 m = 3 m²

Question 7:

A room is 4 m long and 3 m 50 cm wide. How many square meters of carpet is needed to cover the floor of the room?

Answer 7:

Length of room = 4 m

Breadth of room = 3 m 50 cm = 3.50 m

Area of carpet = length x breadth = 4 x 3.50 = 14 m²

Question 8:

A floor is 5 m long and 4 m wide. A square carpet of sides 3 m is laid on the floor. Find the area of the floor that is not carpeted.

Answer 8:

Length of floor = 5 m and breadth of floor = 4 m

Area of floor = length x breadth
= 5 m x 4 m = 20 m²

Now, Side of square carpet = 3 m

Area of square carpet = side x side = 3 x 3 = 9 m²

Area of floor that is not carpeted = 20 m² - 9 m² = 11 m²

Question 9:

Five square flower beds each of sides 1 m are dug on a piece of land 5 m long and 4 m wide. What is the area of the remaining part of the land?

Answer 9:

Side of square bed = 1 m

Area of square bed = side x side = 1 m x 1 m = 1 m²

∴ Area of 5 square beds = 1 x 5 = 5 m²

Now, Length of land = 5 m

Breadth of land = 4 m

∴ Area of land = length x breadth
= 5 m x 4 m = 20 m²

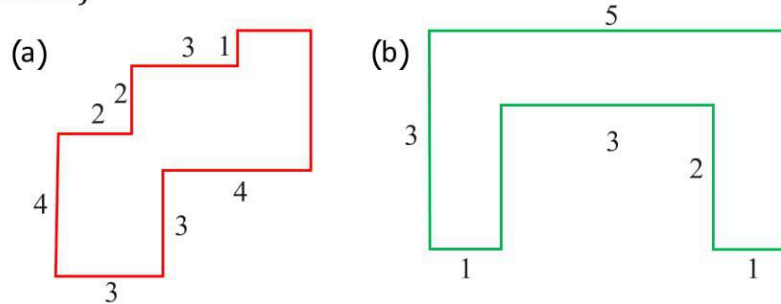
Area of remaining part = Area of land - Area of 5 flower beds
= 20 m² - 5 m² = 15 m²

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Question 10:

By splitting the following figures into rectangles, find their areas. (The measures are given in centimetres)



Answer 10:

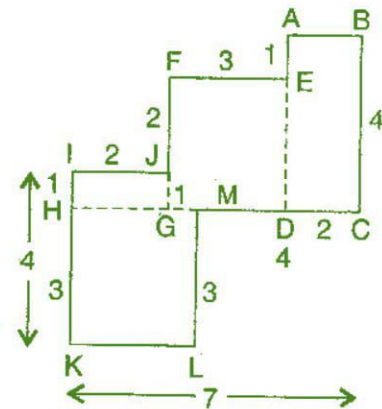
(a) Area of HKLM = $3 \times 3 = 9 \text{ cm}^2$

Area of IJGH = $1 \times 2 = 2 \text{ cm}^2$

Area of FEDG = $3 \times 3 = 9 \text{ cm}^2$

Area of ABCD = $2 \times 4 = 8 \text{ cm}^2$

Total area of the figure = $9 + 2 + 9 + 8 = 28 \text{ cm}^2$

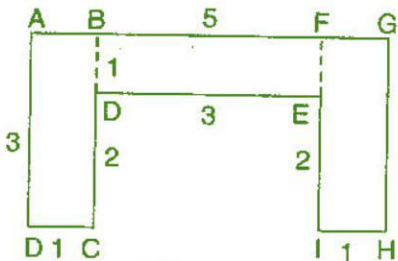


(b) Area of ABCD = $3 \times 1 = 3 \text{ cm}^2$

Area of BDEF = $3 \times 1 = 3 \text{ cm}^2$

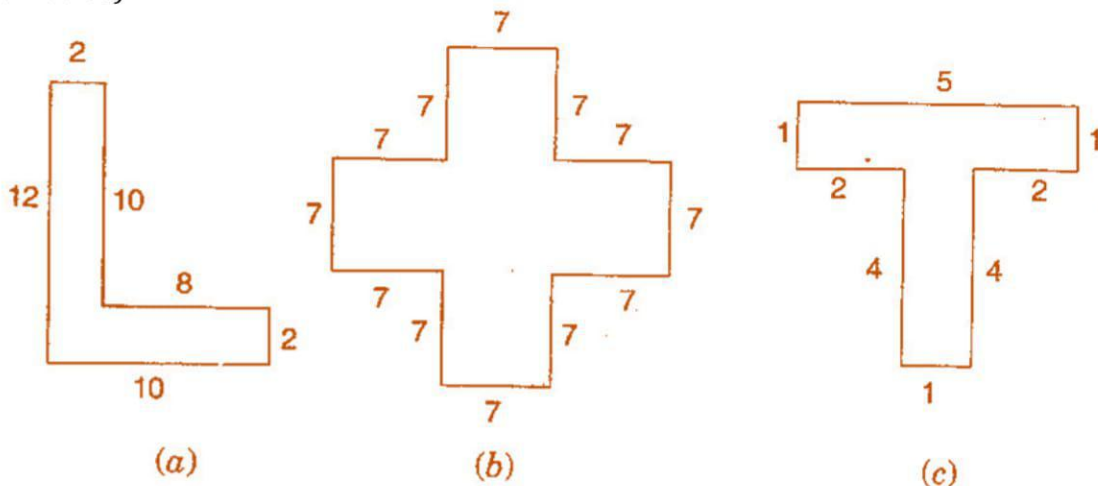
Area of FGHI = $3 \times 1 = 3 \text{ cm}^2$

Total area of the figure = $3 + 3 + 3 = 9 \text{ cm}^2$



Question 11:

Split the following shapes into rectangles and find their areas. (The measures are given in centimetres)

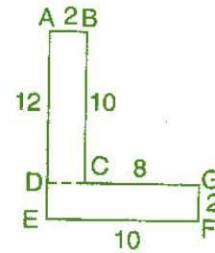


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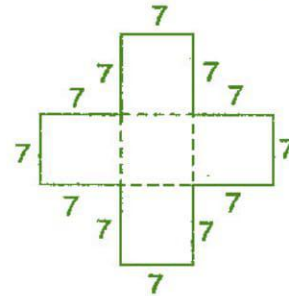
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Answer 11:

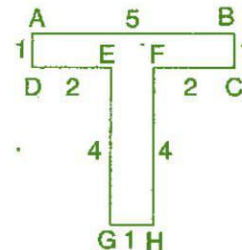
- (a) Area of rectangle ABCD = $2 \times 10 = 20 \text{ cm}^2$
Area of rectangle DEFG = $10 \times 2 = 20 \text{ cm}^2$
Total area of the figure = $20 + 20 = 40 \text{ cm}^2$



- (b) There are 5 squares each of side 7 cm.
Area of one square = $7 \times 7 = 49 \text{ cm}^2$
Area of 5 squares = $49 \times 5 = 245 \text{ cm}^2$



- (c) Area of rectangle ABCD = $5 \times 1 = 5 \text{ cm}^2$
Area of rectangle EFGH = $4 \times 1 = 4 \text{ cm}^2$
Total area of the figure = $5 + 4 \text{ cm}^2$



Question 12:

How many tiles whose length and breadth are 12 cm and 5 cm respectively will be needed to fit in a rectangular region whose length and breadth are respectively?

- (a) 100 cm and 144 cm
(b) 70 cm and 36 cm

Answer 12:

- (a) Area of region = $100 \text{ cm} \times 144 \text{ cm} = 14400 \text{ cm}^2$
Area of one tile = $5 \text{ cm} \times 12 \text{ cm} = 60 \text{ cm}^2$

$$\begin{aligned} \text{Number of tiles} &= \frac{\text{Area of region}}{\text{Area of one tile}} \\ &= \frac{14400}{60} = 240 \end{aligned}$$

Thus, 240 tiles are required.

- (b) Area of region = $70 \text{ cm} \times 36 \text{ cm} = 2520 \text{ cm}^2$
Area of one tile = $5 \text{ cm} \times 12 \text{ cm} = 60 \text{ cm}^2$

$$\begin{aligned} \text{Number of tiles} &= \frac{\text{Area of region}}{\text{Area of one tile}} \\ &= \frac{2520}{60} = 42 \end{aligned}$$

Thus, 42 tiles are required.