



NCERT SOLUTIONS FOR CLASS 6 MATHS MENSURATION
EXERCISE 10.3

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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:

It is known that,

Area of rectangle = Length \times Breadth

(a) $l = 3$ cm

$b = 4$ cm

Area = $l \times b = 3 \times 4 = 12$ cm²

(b) $l = 12$ m

$b = 21$ m

Area = $l \times b = 12 \times 21 = 252$ m²

(c) $l = 2$ km

$b = 3$ km

Area = $l \times b = 2 \times 3 = 6$ km²

(d) $l = 2$ m

$b = 70$ cm = 0.70 m

Area = $l \times b = 2 \times 0.70 = 1.40$ m²

Question 2:

Find the areas of the squares whose sides are:

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

Answer:

It is known that,

$$\text{Area of square} = (\text{Side})^2$$

(a) Side = 10 cm

$$\text{Area} = (10)^2 = 100 \text{ cm}^2$$

(b) Side = 14 cm

$$\text{Area} = (14)^2 = 196 \text{ cm}^2$$

(c) Side = 5 m

$$\text{Area} = (5)^2 = 25 \text{ m}^2$$

Question 3:

The length and 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:

It is known that,

$$\text{Area of rectangle} = \text{Length} \times \text{Breadth}$$

(a) $l = 9 \text{ m}$

$b = 6 \text{ m}$

$$\text{Area} = l \times b = 9 \times 6 = 54 \text{ m}^2$$

(b) $l = 17 \text{ m}$

$b = 3 \text{ m}$

$$\text{Area} = l \times b = 17 \times 3 = 51 \text{ m}^2$$

(c) $l = 4 \text{ m}$

$b = 14 \text{ m}$

$$\text{Area} = l \times b = 4 \times 14 = 56 \text{ m}^2$$

It can be seen that rectangle (c) has the largest area and rectangle (b) has the smallest area.

Question 3:

The length and breadth of three rectangles are as given below:

It can be seen that rectangle (c) has the largest area and rectangle (b) has the smallest area.

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:

$$\text{Area of rectangular plot} = 500 \times 200 = 100000 \text{ m}^2$$

$$\text{Cost of tiling per } 100 \text{ m}^2 = \text{Rs } 8$$

$$\text{Cost of tiling per } 100000 \text{ m}^2 = \frac{8}{100} \times 100000 = \text{Rs } 8000$$

Question 6:

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

Answer:

Length (l) = 2 m

$$\text{Breadth } (b) = 1 \text{ m } 50 \text{ cm} = \left(1 + \frac{50}{100}\right) \text{ m} = 1.5 \text{ m}$$

$$\text{Area} = l \times b = 2 \times 1.5 = 3 \text{ m}^2$$

Question 7:

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

Answer:

Length (l) = 4 m

$$\text{Breadth } (b) = 3 \text{ m } 50 \text{ cm} = 3.5 \text{ m}$$

$$\text{Area} = l \times b = 4 \times 3.5 = 14 \text{ m}^2$$

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:

Length (l) = 5 m

Breadth (b) = 4 m

$$\text{Area of floor} = l \times b = 5 \times 4 = 20 \text{ m}^2$$

$$\text{Area covered by the carpet} = (\text{Side})^2 = (3)^2 = 9 \text{ m}^2$$

It can be seen that rectangle (c) has the largest area and rectangle (b) has the smallest area.

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:

$$\text{Area of rectangular plot} = 500 \times 200 = 100000 \text{ m}^2$$

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$$\text{Area} = l \times b = 2 \times 1.5 = 3 \text{ m}^2$$

Question 7:

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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:

Length (l) = 5 m

Breadth (b) = 4 m

$$\text{Area of floor} = l \times b = 5 \times 4 = 20 \text{ m}^2$$

$$\text{Area covered by the carpet} = (\text{Side})^2 = (3)^2 = 9 \text{ m}^2$$

$$\text{Area not covered by the carpet} = 20 - 9 = 11 \text{ m}^2$$

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:

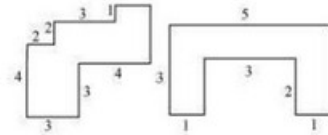
$$\text{Area of the land} = 5 \times 4 = 20 \text{ m}^2$$

$$\text{Area occupied by 5 flower beds} = 5 \times (\text{Side})^2 = 5 \times (1)^2 = 5 \text{ m}^2$$

$$\therefore \text{Area of the remaining part} = 20 - 5 = 15 \text{ m}^2$$

Question 10:

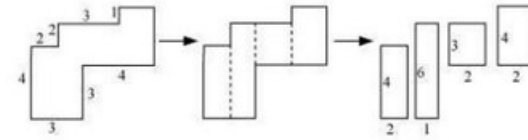
By splitting the following figures into rectangles, find their areas (The measures are given in centimetres).



(a) (b)

Answer:

(a) The given figure can be broken into rectangles as follows.



Area of 1st rectangle = $4 \times 2 = 8 \text{ cm}^2$

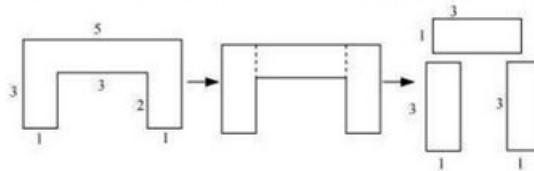
Area of 2nd rectangle = $6 \times 1 = 6 \text{ cm}^2$

Area of 3rd rectangle = $3 \times 2 = 6 \text{ cm}^2$

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

Total area of the complete figure = $8 + 6 + 6 + 8 = 28 \text{ cm}^2$

(b) The given figure can be broken into rectangles as follows.



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

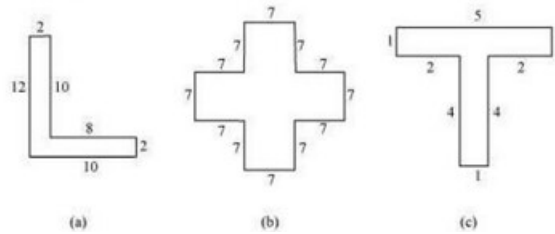
Area of 2nd rectangle = $3 \times 1 = 3 \text{ cm}^2$

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

Total area of the complete 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)



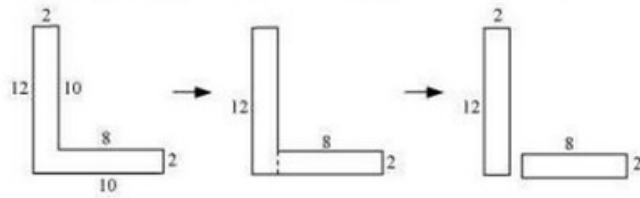
(a)

(b)

(c)

Answer:

(a) The given figure can be broken into rectangles as follows.

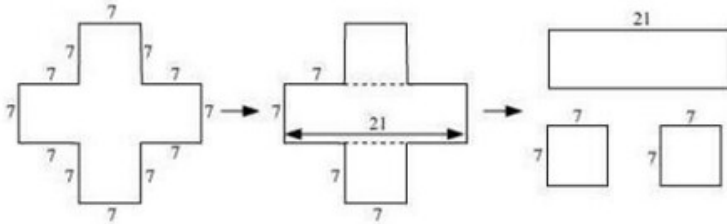


$$\text{Area of 1}^{\text{st}} \text{ rectangle} = 12 \times 2 = 24 \text{ cm}^2$$

$$\text{Area of 2}^{\text{nd}} \text{ rectangle} = 8 \times 2 = 16 \text{ cm}^2$$

$$\text{Total area of the complete figure} = 24 + 16 = 40 \text{ cm}^2$$

(b) The given figure can be broken into rectangles as follows.



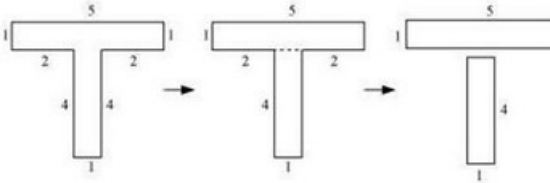
$$\text{Area of 1}^{\text{st}} \text{ rectangle} = 21 \times 7 = 147 \text{ cm}^2$$

$$\text{Area of 2}^{\text{nd}} \text{ square} = 7 \times 7 = 49 \text{ cm}^2$$

$$\text{Area of 3}^{\text{rd}} \text{ square} = 7 \times 7 = 49 \text{ cm}^2$$

$$\text{Total area of the complete figure} = 147 + 49 + 49 = 245 \text{ cm}^2$$

(c) The given figure can be broken into rectangles as follows.



$$\text{Area of 1}^{\text{st}} \text{ rectangle} = 5 \times 1 = 5 \text{ cm}^2$$

$$\text{Area of 2}^{\text{nd}} \text{ rectangle} = 4 \times 1 = 4 \text{ cm}^2$$

$$\text{Total area of the complete figure} = 5 + 4 = 9 \text{ cm}^2$$

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:

$$(a) \text{ Total area of the region} = 100 \times 144 = 14400 \text{ cm}^2$$

$$\text{Area of one tile} = 12 \times 5 = 60 \text{ cm}^2$$

$$\text{Number of tiles required} = \frac{14400}{60} = 240$$

Therefore, 240 tiles are required.

$$(b) \text{ Total area of the region} = 70 \times 36 = 2520 \text{ cm}^2$$

$$\text{Area of one tile} = 60 \text{ cm}^2$$

$$\text{Number of tiles required} = \frac{2520}{60} = 42$$

Therefore, 42 tiles are required.

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