NCERT SOLUTIONS FOR CLASS 6 MATHS MENSURATION EXERCISE 10.3

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:

It is known that,

Area of rectangle = Length × Breadth

(a) l = 3 cm

b = 4 cm

Area = $l \times b$ = 3 × 4 = 12 cm^2

(b) l = 12 m

b = 21 m

Area = $l \times b$ = 12 × 21 = 252 m^2

(c) l = 2 km

b = 3 km

Area = $l \times b$ = 2 × 3 = 6 km^2

(d) l = 2 m

b = 70 cm = 0.70 m

Area = $l \times b$ = 2 × 0.70 = 1.40 m^2

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,

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

(a) Side = 10 cm

Area = $(10)^2$ =100 cm^2

(b) Side = 14 cm

Area = $(14)^2$ = 196 cm^2

(c) Side = 5 m

Area = $(5)^2$ = 25 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,

Area of rectangle = Length × Breadth

(a) l = 9 m

b = 6 m

Area = $l \times b$ = 9 × 6 = 54 m^2

(b) l = 17 m

b = 3 m

Area = $l \times b$ = 17 × 3 = 51 m^2

(c) l = 4 m

b = 14 m

Area = $l \times b$ = 4 × 14 = 56 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:

Area of rectangular plot = 500 × 200 = 100000 m^2

Cost of tiling per 100 m^2 = Rs 8

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

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

Area = $l \times b$ = 2 × 1.5 = 3 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

Breadth (b) = 3 m 50 cm = 3.5 m

Area = $l \times b$ = 4 × 3.5 = 14 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

Area of floor = $l \times b$ = 5 × 4 = 20 m^2

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

Area of rectangular plot = 500 × 200 = 100000 m^2

Cost of tiling per 100 m^2 = Rs 8

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

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

Area = $l \times b$ = 2 × 1.5 = 3 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

Breadth (b) = 3 m 50 cm = 3.5 m

Area = $l \times b$ = 4 × 3.5 = 14 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

Area of floor = $l \times b$ = 5 × 4 = 20 m^2

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

Area not covered by the carpet = 20 − 9 = 11 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:

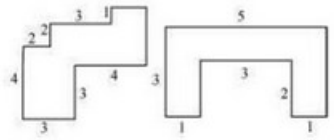
Area of the land = 5 × 4 = 20 m^2

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

∴ Area of the remaining part = 20 − 5 = 15 m^2

Question 10:

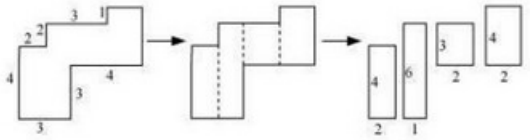
By splitting the following figures into rectangles, find their areas (The measures are given in centimetres).



(a) (b)

Answer:

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



Area of 1st rectangle = 4 × 2 = 8 cm^2

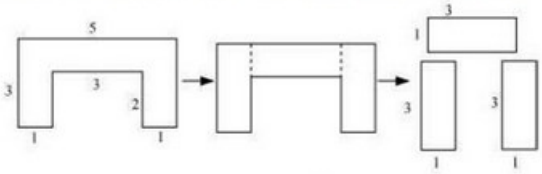
Area of 2nd rectangle = 6 × 1 = 6 cm^2

Area of 3rd rectangle = 3 × 2 = 6 cm^2

Area of 4th rectangle = 4 × 2 = 8 cm^2

Total area of the complete figure = 8 + 6 + 6 + 8 = 28 cm^2

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



Area of 1st rectangle = 3 × 1 = 3 cm^2

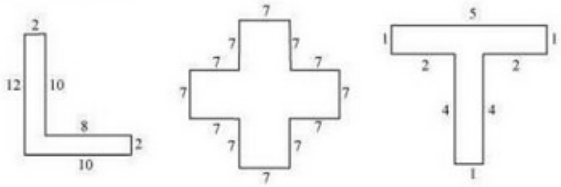
Area of 2nd rectangle = 3 × 1 = 3 cm^2

Area of 3rd rectangle = 3 × 1 = 3 cm^2

Total area of the complete figure = 3 + 3 + 3 = 9 cm^2

Question 11:

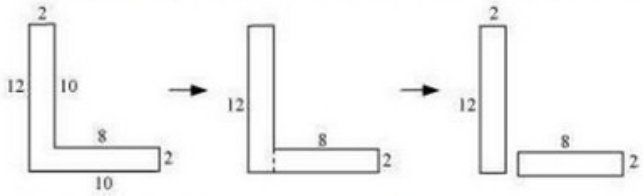
Split the following shapes into rectangles and find their areas. (The measures are given in centimetres)



(a) (b) (c)

Answer:

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

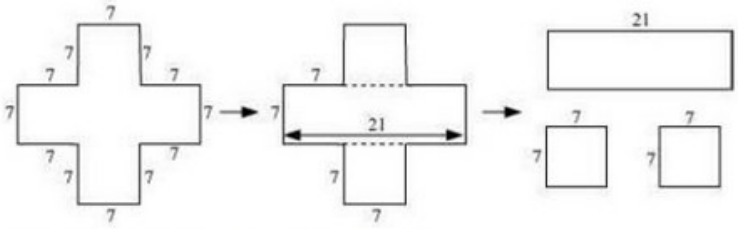


Area of 1st rectangle = 12 × 2 = 24 cm^2

Area of 2nd rectangle = 8 × 2 = 16 cm^2

Total area of the complete figure = 24 + 16 = 40 cm^2

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



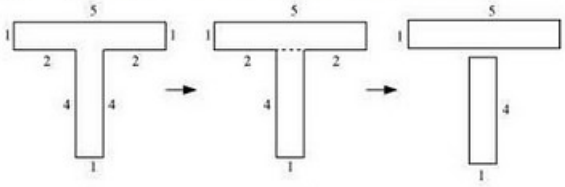
Area of 1st rectangle = 21 × 7 = 147 cm^2

Area of 2nd square = 7 × 7 = 49 cm^2

Area of 3rd square = 7 × 7 = 49 cm^2

Total area of the complete figure = 147 + 49 + 49 = 245 cm^2

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



Area of 1st rectangle = 5 × 1 = 5 cm^2

Area of 2nd rectangle = 4 × 1 = 4 cm^2

Total area of the complete figure = 5 + 4 = 9 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) Total area of the region = 100 × 144 = 14400 cm^2

Area of one tile = 12 × 5 = 60 cm^2

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

Therefore, 240 tiles are required.

(b) Total area of the region = 70 × 36 = 2520 cm^2

Area of one tile = 60 cm^2

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

Therefore, 42 tiles are required.

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