NCERT Solutions for Class 7 Maths Chapter 11

Perimeter and Area Class 7

Chapter 11 Perimeter and Area Exercise 11.1, 11.2, 11.3, 11.4 Solutions

Exercise 11.1 : Solutions of Questions on Page Number : **208**

Q1 :

The length and the breadth of a rectangular piece of land are 500 m and 300 m respectively. Find (i)

its area

(ii)the cost of the land, if 1 m² of the land costs Rs 10,000.

Answer :

(i) Area = Length x Breadth

= 500 x 300

= 150000 m²

(ii)Cost of 1 m² land = Rs 10000

Cost of 150000 m² land = 10000 x 150000 = Rs 1500000000

Q2 :
Find the area of a square park whose perimeter is 320 m.

Answer :

Perimeter = 320 m

4 × Length of the side of park = 320

Length of the side of park = $\dfrac{320}{4} = 80 \text{ m}$

Area = (Length of the side of park)² = (80)² = 6400 m²

Q3 :
Find the breadth of a rectangular plot of land, if its area is 440 m² and the length is 22 m. Also find its perimeter.

Answer :

Area = Length × Breadth = 440 m²

22 × Breadth = 440

Breadth = $\dfrac{440}{22}$ = 20 m

Perimeter = 2 (Length + Breadth)

= 2 (22 + 20) = 2 (42) = 84 m²

Q4 :
The perimeter of a rectangular sheet is 100 cm. If the length is 35 cm, find its breadth. Also find the area.

Answer :

Perimeter = 2 (Length + Breadth) = 100 cm

2 (35 + Breadth) = 100

35 + B = 50

B = 50 - 35 = 15 cm

Area = Length x Breadth = 35 x 15 = 525 cm^2

Q5 :
The area of a square park is the same as of a rectangular park. If the side of the square park is 60 m and the length of the rectangular park is 90 m, find the breadth of the rectangular park.

Answer :

Area of square park = (One of its sides)^2 = (60)^2 = 3600 m^2

Area of rectangular park = Length x Breadth = 3600

90 x Breadth = 3600

Breadth = 40 m

Q6 :
A wire is in the shape of a rectangle. Its length is 40 cm and breadth is 22 cm. If the same wire is rebent in the shape of a square, what will be the measure of each side. Also find which shape encloses more area?

Answer :

Perimeter of rectangle = Perimeter of square

2 (Length + Breadth) = 4 × Side

2 (40 + 22) = 4 × Side

2 × 62 = 4 × Side

Side = $\frac{124}{4}$ = 31 cm

Area of rectangle = 40 × 22 = 880 cm^2

Area of square = (Side)^2 = 31 × 31 = 961 cm^2

Therefore, the square-shaped wire encloses more area.

Q7 :
The perimeter of a rectangle is 130 cm. If the breadth of the rectangle is 30 cm, find its length. Also find the area of the rectangle.

Answer :
Perimeter = 2 (Length + Breadth) = 130

2 (Length + 30) = 130

Length + 30 = 65

Length = 65 - 30 = 35 cm

Area = Length x Breadth = 35 x 30 = 1050 cm²

Q8 :

A door of length 2 m and breadth 1 m is fitted in a wall. The length of the wall is 4.5 m and the breadth is 3.6 m (see the given figure). Find the cost of white washing the wall, if the rate of white washing the wall is Rs 20 per m².
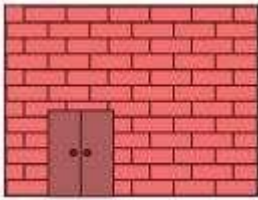
Answer :

Area of wall = 4.5 x 3.6 = 16.2 m²

Area of door = 2 x 1 = 2 m²

Area to be white-washed = 16.2 - 2 = 14.2 m²

Cost of white-washing 1 m² area = Rs 20

∴Cost of white-washing 14.2 m² area = 14.2 x 20 = Rs 284

Exercise 11.2 : Solutions of Questions on Page Number : **216**
Q1 :

Find the area of each of the following parallelograms:
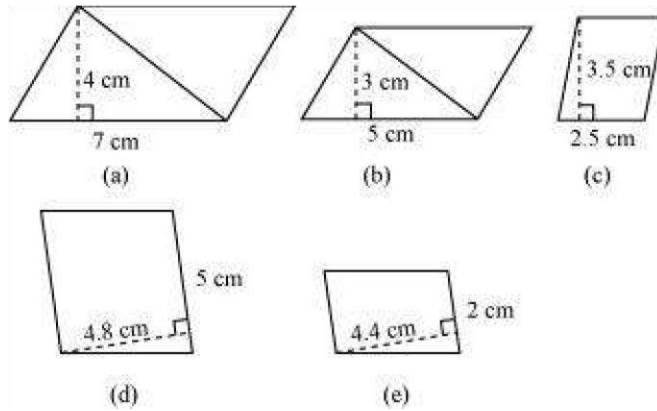
Answer :

Area of parallelogram = Base x Height

(a) Height= 4 cm

Base = 7 cm

Area of parallelogram = 7 x 4 = 28 cm²

(b) Height= 3 cm

Base = 5 cm

Area of parallelogram = 5 x 3 = 15 cm²

(c) Height= 3.5 cm

Base = 2.5 cm

Area of parallelogram = 2.5 x 3.5 = 8.75 cm²

(d) Height= 4.8 cm
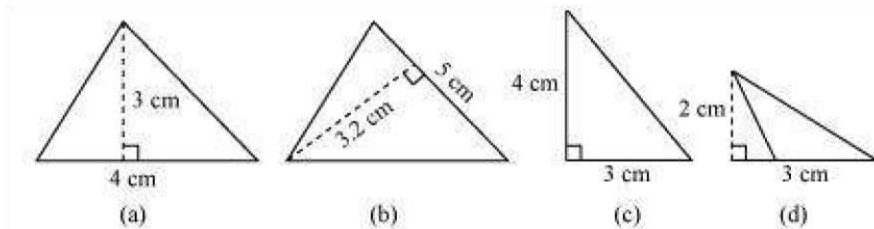
Base = 5 cm

Area of parallelogram = 5 x 4.8 = 24 cm²

(e) Height= 4.4 cm

Base = 2 cm

Area of parallelogram = 2 x 4.4 = 8.8 cm²

Q2 :
Find the area of each of the following triangles:

Answer :

$$\text{Area of triangle} = \frac{1}{2} \times \text{Base} \times \text{Height}$$

(a) Base = 4 cm, height= 3 cm

$$\text{Area} = \frac{1}{2} \times 4 \times 3 = 6 \text{ cm}^2$$

(b) Base = 5 cm, height= 3.2 cm

$$\text{Area} = \frac{1}{2} \times 5 \times 3.2 = 8 \text{ cm}^2$$

(c) Base = 4 cm, height= 3 cm

$$\text{Area} = \frac{1}{2} \times 4 \times 3 = 6 \text{ cm}^2$$

(d) Base = 3 cm, height= 2 cm

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

Q3 :
Find the missing values:

So No	Base	Height	Area of parallelogram
a.	20 cm	-	246 cm²
b.	-	15 cm	154.5 cm²
c.	-	8.4 cm	48.72 cm²
d.	15.6 cm	-	16.38 cm²

Answer :

Area of parallelogram = Base × Height

(a) b = 20 cm h

= ?

Area = 246 cm²

20 × h = 246

$$h = \frac{246}{20} = 12.3 \text{ cm}$$

Therefore, the height of such parallelogram is 12.3 cm.

(b) b = ? h

= 15 cm Area =

154.5 cm² b × 15

= 154.5 b = 10.3

cm

Therefore, the base of such parallelogram is 10.3 cm.

(c) b = ? h

= 8.4 cm Area =

48.72 cm² b × 8.4

= 48.72

$$b = \frac{48.72}{8.4} = 5.8 \text{ cm}$$

Therefore, the base of such parallelogram is 5.8 cm.

(d) b =

15.6 cm h = ?

Area = 16.38 cm²

15.6 × h = 16.38

$$h = \frac{16.38}{15.6} = 1.05 \text{ cm}$$

Therefore, the height of such parallelogram is 1.05 cm.

Q4 :
Find the missing values:

Base	Height	Area of triangle
15 cm	_____	87 cm²
_____	31.4 mm	1256 mm²
22 cm	_____	170.5 cm²

Answer :

$$\text{Area of triangle} = \frac{1}{2} \times \text{Base} \times \text{Height}$$

(a) $b = 15$ cm

$h = ?$

Area = $\frac{1}{2} \times b \times h = 87 \text{ cm}^2$

$$\frac{1}{2} \times 15 \times h = 87 \text{ cm}^2$$

$$h = \frac{87 \times 2}{15} = 11.6 \text{ cm}$$

Therefore, the height of such triangle is 11.6 cm.

(b) $b = ?$

$h = 31.4$ mm

Area = $\frac{1}{2} \times b \times h = 1256 \text{ mm}^2$

$$\frac{1}{2} \times b \times 31.4 = 1256$$

$$b = \frac{1256 \times 2}{31.4} = 80 \text{ mm}$$

Therefore, the base of such triangle is 80 mm.

(c) $b = 22$ cm $h = ?$

$$\text{Area} = \frac{1}{2} \times b \times h = 170.5 \text{ cm}^2$$

$$\frac{1}{2} \times 22 \times h = 170.5 \text{ cm}^2$$

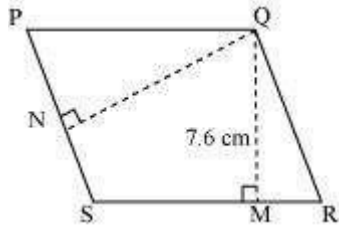$$h = \frac{170.5 \times 2}{22} = 15.5 \text{ cm}$$

Therefore, the height of such triangle is 15.5 cm.

Q5 :
PQRS is a parallelogram (see the given figure). QM is the height from Q to SR and QN is the height from Q to PS. If SR = 12 cm and QM = 7.6 cm. Find:

(a) the area of the parallelogram PQRS

(b) QN, if PS = 8 cm

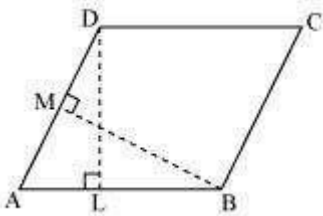**Answer :**

(a) Area of parallelogram = Base × Height = SR × QM

= 7.6 × 12 = 91.2 cm²

(b) Area of parallelogram = Base × Height = PS × QN = 91.2 cm²

QN × 8 = 91.2

$$QN = \frac{91.2}{8} = 11.4 \text{ cm}$$

Q6 :
DL   and BM are the heights on sides AB and AD respectively of parallelogram ABCD (see the given figure). If the area of the parallelogram is 1470 cm², AB = 35 cm and AD = 49 cm, find the length of BM and DL.

Answer :

Area of parallelogram = Base × Height = AB × DL
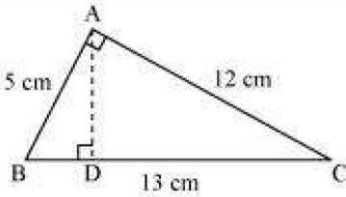1470 = 35 × DL

$$DL = \frac{1470}{35} = 42 \text{ cm}$$

Also, 1470 = AD × BM

1470 = 49 × BM

$$BM = \frac{1470}{49} = 30 \text{ cm}$$

Q7 :

ΔABC is right angled at A (see the given figure). AD is perpendicular to BC. If AB = 5 cm, BC = 13 cm and AC = 12 cm, Find the area of ΔABC. Also find the length of AD.

Answer :

Area = $\frac{1}{2} \times \text{Base} \times \text{Height} = \frac{1}{2} \times 5 \times 12$ = 30 cm²

$$\text{Also, area of triangle} = \frac{1}{2} \times AD \times BC$$

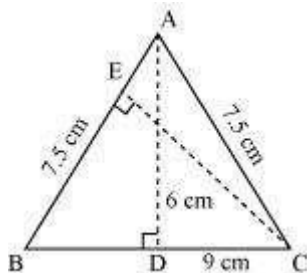$$30 = \frac{1}{2} \times AD \times 13$$

$$\frac{30 \times 2}{13} = AD$$

$$AD = 4.6 \text{ cm}$$

Q8 :

ΔABC is isosceles with AB = AC = 7.5 cm and BC = 9 cm (see the given figure). The height AD from A to BC, is 6 cm. Find the area of ΔABC. What will be the height from C to AB i.e., CE?

Answer :

$$\text{Area of } \Delta ABC = \frac{1}{2} \times \text{Base} \times \text{Height} = \frac{1}{2} \times BC \times AD$$

$$= \frac{1}{2} \times 9 \times 6 = 27 cm^2$$

$$\text{Area of } \Delta ABC = \frac{1}{2} \times \text{Base} \times \text{Height} = \frac{1}{2} \times AB \times CE$$

$$27 = \frac{1}{2} \times 7.5 \times CE$$

$$CE = 7.2 \text{ cm}$$

Exercise 11.3 : Solutions of Questions on Page Number : **223**

Q1 :

Find the circumference of the circles with the following radius: (Takeπ $= \frac{22}{7}$)

(a) 14 cm (b) 28 mm (c) 21 cm

Answer :

(a) r = 14 cm

Circumference = $= 2 \times \frac{22}{7} \times 14$ 2πr = 88 cm

(b) r = 28 mm

Circumference = $= 2 \times \frac{22}{7} \times 28$ 2πr = 176 mm

(c) r = 21 cm

Circumference = $= 2 \times \frac{22}{7} \times 21$ 2πr = 132 cm

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Q2 :
Find the area of the following circles, given that:

(a) radius = 14 mm (Takeπ $= \frac{22}{7}$) (b) diameter = 49 m

(c) radius = 5 cm

Answer :

(a) r = 14 mm

Area = πr^2 $= \dfrac{22}{7} \times 14 \times 14$ $= 616 \text{ mm}^2$

(b) $d = 49$ m

$r = \dfrac{49}{2}$ m

Area = $\pi r^2 = \dfrac{22}{7} \times \dfrac{49}{2} \times \dfrac{49}{2}$ $= 1886.5 \text{ m}^2$

(c) $r = 5$ cm

Area = $\pi r^2 = \dfrac{22}{7} \times 5 \times 5 = \dfrac{550}{7}$ $= 78.57 \text{ cm}^2$

Q3 :
If the circumference of a circular sheet is 154m, find its radius. Also find the area of

the sheet. (Take π $= \dfrac{22}{7}$)

Answer :

Circumference = $2\pi r = 154$ m

$$2 \times \dfrac{22}{7} \times r = 154$$

$$r = 154 \times \dfrac{7}{44} = \dfrac{49}{2} = 24.5 \text{ m}$$

Area = $\pi r^2 = \dfrac{22}{7} \times r^2$

$= \dfrac{22}{7} \times \dfrac{49}{2} \times \dfrac{49}{2}$ $= 1886.5 \text{ m}^2$

Q4 :
A gardener wants to fence a circular garden of diameter 21 m. Find the length of the rope he needs to purchase, if he

makes 2 rounds of fence. Also find the costs of the rope, if it cost Rs 4 per meter. (Take π $= \dfrac{22}{7}$)

Answer : d

$= 21$ m

$r = \dfrac{21}{2}$ m

$$2 \times \frac{22}{7} \times \frac{21}{2}$$

Circumference = 2πr = = 66 m

Length of rope required for fencing = 2 × 66 m = 132 m

Cost of 1 m rope = Rs 4

Cost of 132 m rope = 4 × 132 = Rs 528

Q5 :
From a circular sheet of radius 4 cm, a circle of radius 3 cm is removed. Find the area of the remaining sheet. (TakeÃâ,¬ = 3.14)
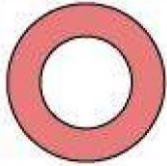
Answer :

Outer radius of circular sheet = 4 cm

Inner radius of circular sheet = 3 cm

Remaining area = 3.14 x 4 x 4 - 3.14 x 3 x 3

= 50.24 - 28.26

= 21.98 cm²

Q6 :
Saima wants to put a lace on the edge of a circular table cover of diameter 1.5 m. Find the length of the lace required and also find its cost if one meter of the lace costs Rs 15.(Takeπ = 3.14)

Answer :

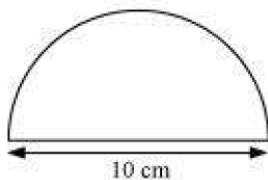Circumference = 2πr

$$= 2 \times 3.14 \times \frac{d}{2}$$

$$= 2 \times 3.14 \times \frac{1.5}{2} = 4.71 \text{ m}$$

Cost of 1 m lace = Rs 15

Cost of 4.71 m lace = 4.71 × 15 = Rs 70.65

Q7 :
Find the perimeter of the adjoining figure, which is a semicircle including its diameter.

10 cm

Answer :

Radius = 5 cm

Length of curved part = πr

$$= \frac{22}{7} \times 5$$

= 15.71 cm

Total perimeter = Length of curved part + Length of diameter

= 15.71 + 10 = 25.71 cm

Q8 :
Find the cost of polishing a circular table-top of diameter 1.6 m, if the rate of polishing is Rs 15/m². (Take π = 3.14)

Answer :

Diameter = 1.6 m

$$= \frac{1.6}{2}$$

Radius $= 0.8$ m

Area = 3.14 × 0.8 × 0.8

= 2.0096 m²

Cost for polishing 1 m² area = Rs 15

Cost for polishing 2.0096 m² area = 15 × 2.0096 = 30.14 Therefore,
it will cost Rs 30.14 for polishing such circular table.

Q9 :
Shazli took a wire of length 44 cm and bent it into the shape of a circle. Find the radius of that circle. Also find its area. If the same wire is bent into the shape of a square, what will be the length of each of its sides? Which figure encloses more

area, the circle or the square? (Takeπ $= \frac{22}{7}$ **)**

Answer :

Circumference = $2\pi r$ = 44 cm

$$2 \times \frac{22}{7} \times r = 44$$

$r = 7$ cm

$$= \frac{22}{7} \times 7 \times 7 = 154 \text{ cm}^2$$

Area = πr^2

If the wire is bent into a square, then the length of each side would be = $\frac{44}{4} = 11$ cm

Area of square = (11)² = 121 cm² Therefore,
circle encloses more area.

Q10 :
From a circular card sheet of radius 14 cm, two circles of radius 3.5 cm and a rectangle of length 3 cm and breadth 1 cm

are removed (as shown in the following figure). Find the area of the remaining sheet. (Take$\pi = \dfrac{22}{7}$)

Answer :

Area of bigger circle = $\dfrac{22}{7} \times 14 \times 14$ = 616 cm²

Area of 2 small circles = 2 × πr^2 = $2 \times \dfrac{22}{7} \times 3.5 \times 3.5$ = 77 cm²

Area of rectangle = Length × Breadth = 3 × 1 = 3 cm²

Remaining area of sheet = 616 - 77 - 3 = 536 cm²

Q11 :
A circle of radius 2 cm is cut out from a square piece of an aluminium sheet of side 6 cm. What is the area of the left over aluminium sheet? (Take π = 3.14)

Answer :

Area of square-shaped sheet = (Side)² = (6)² = 36 cm²

Area of circle = 3.14 x 2 x 2 = 12.56 cm²
Remaining area of sheet = 36 - 12.56 = 23.44 cm²

Q12 :
The circumference of a circle is 31.4 cm. Find the radius and the area of the circle? (Take π = 3.14)
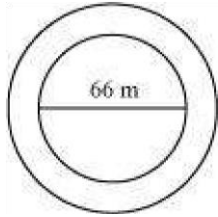
Answer :
Circumference = 2πr = 31.4 cm

2 x 3.14 x r = 31.4 r

= 5 cm

Area = 3.14 x 5 x 5 = 78.50 cm²

Q13 :

A circular flower bed is surrounded by a path 4 m wide. The diameter of the flower bed is 66 m. What is the area of this path? (Ãâ,¬ = 3.14)

Answer :

Radius of flower bed $= \dfrac{66}{2}$ = 33 m

Radius of flower bed and path together = 33 + 4 = 37 m

Area of flower bed and path together = 3.14 × 37 × 37 = 4298.66 m²

Area of flower bed = 3.14 × 33 × 33 = 3419.46 m²

Area of path = Area of flower bed and path together - Area of flower bed

= 4298.66 - 3419.46 = 879.20 m²

Q14 :

A circular flower garden has an area of 314 m². A sprinkler at the centre of the garden can cover an area that has a radius of 12 m. Will the sprinkler water the entire garden? (Take π = 3.14)
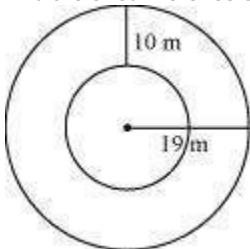
Answer :

Area = πr^2 = 314 m²

3.14 x r^2 = 314 r^2 =

100 r = 10 m

Yes, the sprinkler will water the whole garden.

Q15 :

Find the circumference of the inner and the outer circles, shown in the adjoining figure? (Take Ãâ,¬ = 3.14)

Answer :

Radius of outer circle = 19 m

Circumference = $2\pi r$ = 2 x 3.14 x 19 = 119.32 m

Radius of inner circle = 19 - 10 = 9 m Circumference
= 2πr = 2 x 3.14 x 9 = 56.52 m

Q16 :
How many times a wheel of radius 28 cm must rotate to go 352 m?

(Take π $= \dfrac{22}{7}$ **)**

Answer : r

= 28 cm

Circumference = 2πr = $\dfrac{2 \times \dfrac{22}{7} \times 28}{}$ = 176 cm

Number of rotations = $\dfrac{\text{Total distance to be covered}}{\text{Circumference of wheel}} = \dfrac{352m}{176cm} = \dfrac{35200}{176} = 200$

Therefore, it will rotate 200 times.

Q17 :
The minute hand of a circular clock is 15 cm long. How far does the tip of the minute hand move in 1 hour. (Take π = 3.14)

Answer :

Distance travelled by the tip of minute hand = Circumference of the clock
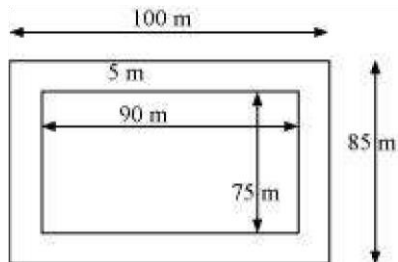
= 2πr = 2 x 3.14 x 15

= 94.2 cm

Exercise 11.4 : Solutions of Questions on Page Number : **226**
Q1 :
A garden is 90 m long and 75 m broad. A path 5 m wide is to be built outside and around it. Find the area of the path. Also find the area of the garden in hectare.

Answer :

Length (l) of garden = 90 m

Breadth (b) of garden = 75 m

Area of garden = l × b = 90 × 75 = 6750 m²

From the figure, it can be observed that the new length and breadth of the garden, when path is also included, are 100m and 85m respectively.

Area of the garden including the path = 100 × 85 = 8500 m²

Area of path = Area of the garden including the path - Area of garden
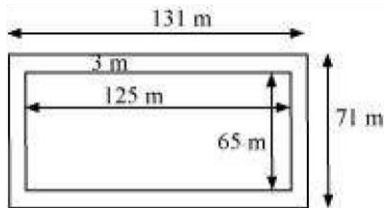
= 8500 - 6750 = 1750 m²

1 hectare = 10000 m²

Therefore, area of garden in hectare $= \dfrac{6750}{10000} = 0.675 \, \text{hectare}$

Q2 :
A 3 m wide path runs outside and around a rectangular park of length 125 m and breadth 65 m. Find the area of the path.

Answer :

Length (*l*) of park = 125 m

Breadth (*b*) of park = 65 m

Area of park = *l* x *b* = 125 x 65 = 8125 m²

From the figure, it can be observed that the new length and breadth of the park, when path is also included, are 131 m and 71 m respectively.
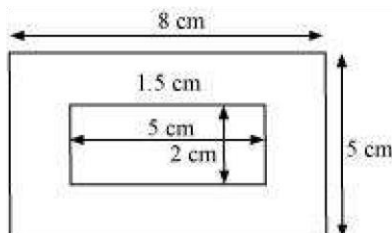
Area of the park including the path = 131 x 71 = 9301 m²

Area of path = Area of the park including the path - Area of park

= 9301 - 8125 = 1176 m²

Q3 :
A picture is painted on a cardboard 8 cm long and 5 cm wide such that there is a margin of 1.5 cm along each of its sides. Find the total area of the margin.

Answer :

Length (*l*) of cardboard = 8 cm

Breadth (*b*) of cardboard = 5 cm

Area of cardboard including margin = *l* x *b* = 8 x 5 = 40 cm²

From the figure, it can be observed that the new length and breadth of the cardboard, when margin is not included, are 5 cm and 2 cm respectively.

Area of the cardboard not including the margin = 5 x 2 = 10 cm²

Area of the margin = Area of cardboard including the margin - Area of cardboard not including

the margin

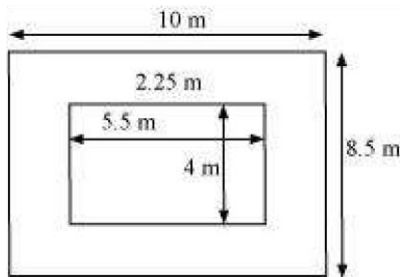= 40 - 10 = 30 cm²

Q4 :
A verandahof width 2.25 m is constructed all along outside a room which is 5.5 m long and 4 m wide. Find:

(i) the area of the verandah

(ii) the cost of cementing the floor of the verandah at the rate of Rs 200 per m².

Answer :

(i)

Length (l) of room = 5.5 m

Breadth (b) of room = 4 m

Area of room = l x b = 5.5 x 4 = 22 m²

From the figure, it can be observed that the new length and breadth of the room, when verandah is also included, are 10 m and 8.5 m respectively.

Area of the room including the verandah = 10 x 8.5 = 85 m²

Area of verandah = Area of the room including the verandah - Area of room
= 85 - 22 = 63 m²

(ii)

Cost of cementing 1 m² area of the floor of the verandah = Rs 200

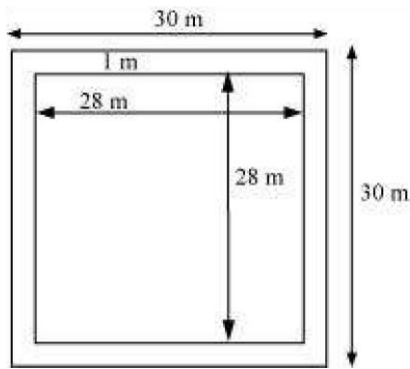Cost of cementing 63 m² area of the floor of the verandah = 200 x 63

= Rs 12600

Q5 :
A path 1 m wide is built along the border and inside a square garden of side 30 m. Find:

(i) the area of the path

(ii) the cost of planting grass in the remaining portion of the garden at the rate of Rs 40 per m².

Answer :

(i)

Side (*a*) of square garden = 30 m

Area of square garden including path = a^2 = $(30)^2$ = 900 m²

From the figure, it can be observed that the side of the square garden, when path is not included, is 28 m.

Area of the square garden not including the path = $(28)^2$ = 784 m²

Area of path = Area of the square garden including the path - Area of square

garden not including the path

= 900 - 784 = 116 m²

(ii)

Cost of planting grass in 1 m² area of the garden = Rs 40

Cost of planting grass in 784 m² area of the garden = 784 x 40 = Rs 31360

Q6 :
Two cross roads, each of width 10 m, cut at right angles through the centre of a rectangular park of length 700 m and breadth 300 m and parallel to its sides. Find the area of the roads. Also find the area of the park excluding cross roads. Give the answer in hectares.

Answer :
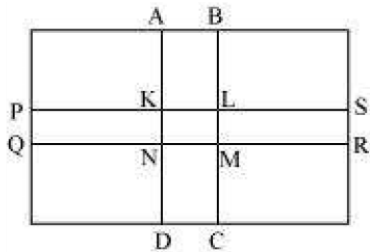
Length (*l*) of park = 700 m

Breadth (*b*) of park = 300 m

Area of park = 700 x 300 = 210000 m²

Length of road PQRS = 700 m

Length of road ABCD = 300 m

Width of each road = 10 m

Area of the roads = ar (PQRS) + ar (ABCD) - ar (KLMN)

= (700 x 10) + (300 x 10) - (10 x 10)

= 7000 + 3000 - 100

= 10000 - 100 = 9900 m² = 0.99 hectare

Area of park excluding roads = 210000 - 9900 = 200100 m² = 20.01 hectare

Q7 :

Through a rectangular field of length 90 m and breadth 60 m, two roads are constructed which are parallel to the sides and cut each other at right angles through the centre of the fields. If the width of each road is 3 m, find (i) the area covered by the roads.

(ii)the cost of constructing the roads at the rate of Rs 110 per m².

Answer :
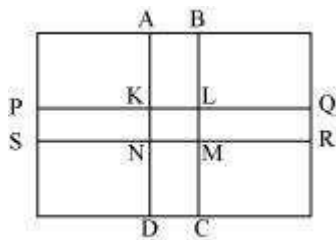
Length (*l*) of field = 90 m

Breadth (*b*) of field = 60 m

Area of field = 90 x 60 = 5400 m²

Length of road PQRS = 90 m

Length of road ABCD = 60 m

Width of each road = 3 m

Area of the roads = ar (PQRS) + ar (ABCD) - ar (KLMN)

= (90 x 3) + (60 x 3) - (3 x 3)
= 270 + 180 - 9 = 441 m²

Cost for constructing 1 m² road = Rs 110

Cost for constructing 441 m² road = 110 x 441 = Rs 48510

Q8 :

Pragya wrapped a cord around a circular pipe of radius 4 cm (adjoining figure) and cut off the length required of the cord. Then she wrapped it around a square box of side 4 cm (also shown). Did she have any cord left? (Ã¢‚¬= 3.14).

Answer :

Perimeter of the square = 4 x Side of the square = 4 x 4 = 16 cm

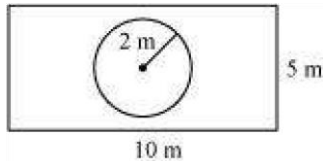Perimeter of circular pipe = 2πr = 2 x 3.14 x 4 = 25.12 cm

Length of chord left with Pragya = 25.12 - 16 = 9.12 cm

Q9 :
The adjoining figure represents a rectangular lawn with a circular flower bed in the middle. Find:

(i) the area of the whole land

(ii) the area of the flower bed

(iii) the area of the lawn excluding the area of the flower bed

(iv) the circumference of the flower bed.

Answer :

(i) Area of whole land = Length x Breadth = 10 x 5 = 50 m²

(ii) Area of flower bed = πr^2 = 3.14 x 2 x 2 = 12.56 m²
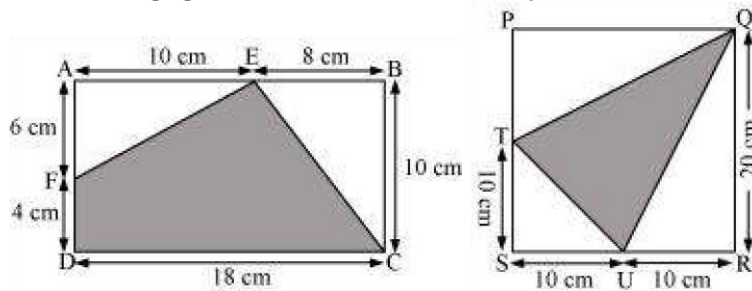
(iii)Area of lawn excluding the flower bed = Area of whole land - Area of flower bed

= 50 - 12.56 = 37.44 m²

(iv)Circumference of flower bed = $2\pi r$ = 2 x 3.14 x 2 = 12.56 m

Q10 :
In the following figures, find the area of the shaded portions:

Answer :

(i)

Area of EFDC = ar (ABCD) - ar (BCE) - ar (AFE)

= (18 × 10) - $\frac{1}{2}$ (10 × 8) - $\frac{1}{2}$ (6 × 10)

= 180 - 40 - 30 = 110 cm²

(ii)

ar (QTU) = ar (PQRS) - ar (TSU) - ar (RUQ) - ar (PQT)

$$= (20 \times 20) - \frac{1}{2} (10 \times 10) - \frac{1}{2} (20 \times 10) - \frac{1}{2} (20 \times 10)$$
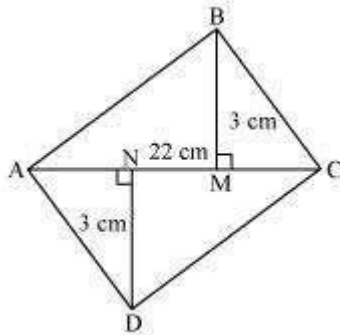
= 400 - 50 - 100 - 100 = 150 cm²

Q11 :

Find the area of the quadrilateral ABCD.

Here, AC = 22 cm, BM = 3 cm,

DN = 3 cm, and

BM⊥AC, DN⊥AC

Answer :

ar (ABCD) = ar (ABC) + ar (ADC)

$$= \frac{1}{2} (3 \times 22) + \frac{1}{2} (3 \times 22)$$
= 33 + 33 = 66 cm²