RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2: RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 provide detailed guidance on solving problems related to the perimeter and areas of plane figures. This exercise focuses on more complex problems, including the calculation of areas and perimeters of various geometric shapes such as triangles, parallelograms, trapeziums, and circles.

The solutions are designed to help students understand the step-by-step process of applying formulas and solving these problems accurately. These solutions provide clear explanations and detailed steps to ensure students can grasp the concepts effectively and apply them in their exams and real-life situations.

RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 Overview

RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 are created by subject experts from Physics Wallah. These solutions give a clear overview of how to find the perimeter and areas of different shapes like triangles, parallelograms, trapeziums, and circles.

With these expert-prepared solutions, students can easily understand and use the formulas needed to find perimeters and areas, helping them improve their problem-solving skills and do well in exams.

RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 PDF

RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 are available in a downloadable PDF format. This PDF includes detailed solutions to all the problems in Exercise 17.2 covering the concepts of perimeter and areas of various plane figures.

You can download the PDF using the link provided below to enhance your study and improve your understanding of this important chapter.

RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 PDF

RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2

Below we have provided RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2 for the ease of the students –

Q. The perimeter of a rectangular plot of land is 80 m and its breadth is 16 m. Find the length and area of the plot.

Solution:

perimeter=80
2(l+b)=80
l+b=40
l+16=40
l=40−16=24

Area=l×b=24×16=384m

Q. The length of a rectangular park is twice its breadth and its perimeter is 840 m.Find the area of the park.

Solution:

Let l=2b
2(l+b)=840
2(2b+b)=840
6b=840
b=8406=140
so l=140×2=280

Area=l×b=140×280=39200m

Q. One side of a rectangle is 12 cm long and its diagonal measures 37 cm. Find the other side and the area of the rectangle.

Solution:

Using Pythagoras theorem, diagonal is the hypotenuse

Other side =√(37×37)−(12×12)=√(1369−144)=35 cm

Area=12×35=420 m

Q. The area of a rectangle plot is 462 m and its length is 28 m. Find its perimeter.

Solution:

Area of rectangle = length×breadth=462m
Length = 28 m
28×b=462
b=46228
b= 16.5m
Perimeter = 2(l+b)
= 2(28+16.5)
=2 × 44.5
=89m

Q. A room is 16m long and 13.5 m broad. Find the cost of covering its floor with 75-m-wide carpet at Rs.60 per metre.

Solution:

area of room = length × breadth=16 × 13.5 = 216 m

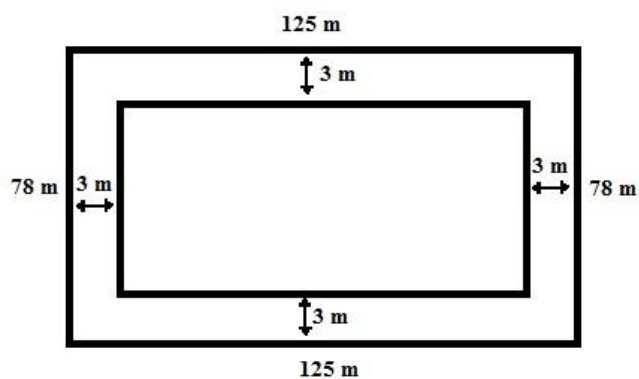width of carpet = 75 m

length of carpet required = 21675=2.88 m

cost = 60 × 2.88= 172.8 rupees

Q. A rectangular plot measures 125 m by 78 m. It has a gravel path 3 m wide all around on the outside. Find the area of the path and the cost of gravelling it at Rs.75 per m.

Solution:

area of path = area of whole field - area of rec. plot

= 131 × 84 - 125 × 78

=11004 - 9750

= 1254 m2
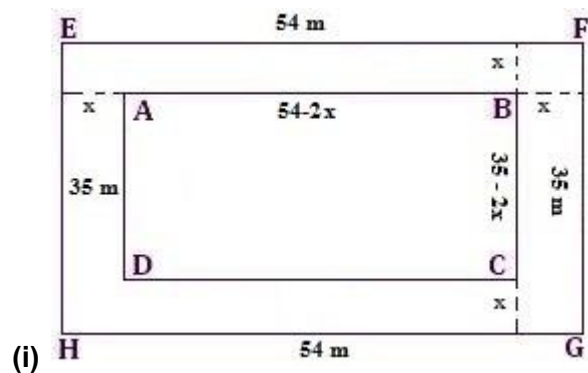
cost of gravelling = 1254 × 75

=Rs. 94050

Q. (i) A footpath of uniform width runs all around the inside of a rectangular field 54 m long and 35 m wide. If the area of the path is 420m, find the width of the path.

(ii) A carpet is laid on the floor of a room 8 m by 5m. There is a border of constant width all around the carpet. If the area of the border is 12 m, find its width.

Solution:

(i)

Let width = x m

Area of path = ar(EFGH) - ar(ABCD)

420=54×35−(54−2x)(35−2x)420=1890−[54×34−108x−70x+4x2]420=1890−1890+178x+4x24x2−178x+420=02x2−89x+210=0D=b2−4ac=(−89)2−4(2)(210)=7921−1680=6241x=−b±√D2a=−(−89)±√62412×2=89±794=89+794 or 89−794=1684 or 104=42 or 2.5

Width of path cannot be 42,

So width of path = 2.5 m

(ii)

Let width of carpet be 'x'm
Therefore, inclusive of border:
Length of room = 8m
Breadth of room = 5m

Length of carpet = 8-x-x = (8-2x) m
Breadth of carpet = 5-x-x = (5-2x) m

Area of room (carpet + border) = 8 × 5 = 40 sq.m

Area of just carpet \)= (8-2x)(5-2x) \ = (40-16x-10x+4x^2)\= (4x^2-26x+40)~m^2\)

Area of just border = 12sq.m (given)

Therefore,
Area of ground = Area of just border + Area of just carpet
⇒40=12+(4x2−26x+40)⇒0=4x2−26x+12⇒0=2x2−13x+6(dividing equation by 2)⇒0=2x2−12x−x+6⇒0=2x(x−6)−1(x−6)⇒0=(2x−1)(x−6)⇒x=12=0.5 m or 6 m

discarding 6m since it is longer than room then

Therefore, width of border = 0.5m

Q. The length an breadth of a rectangular garden are in the ratio 9:5.A path 3.5 m wide, running all around inside it has an area of 1911 m. Find the dimensions of the garden.

Solution:
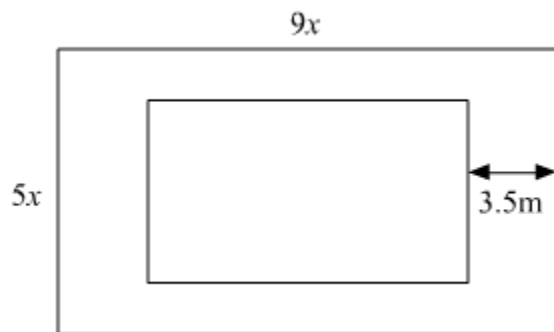
Given: Length and breadth of the rectangular garden are in the ratio 9: 5 and the width of the path is 3.5 m.

Let the length and breadth of the garden be 9xand 5x respectively.

The length and breadth of the inner rectangle are

9x–2×3.5 and 5x–2×3.5

ie, 9x–7 and 5x–7

Now area of garden =9x×5x=45x2

and area of the inner rectangle =(9x–7)(5x–7)

=45x2–63x–35x+49

=45x2–98x+49

also the area of path = 1911 m

⇒ 45x2–(45x2–98x+49)=1911

⇒ 98x−49)=1911

⇒ 49(2x–1)=1911

⇒ 2x–1=39

⇒ 2x=40⇒x=20

Length =9x=9×20=180

Breadth =5x=5×20=100

Q. A room 4.9 m long and 3.5 m broad is covered with carpet, leaving an uncovered margin of 25 cm all around the room. If the breadth of the carpet is 80 cm, find its cost at Rs.80 per metre.

Solution:

A room is covered with carpet of length = 4.9 m and breadth = 3.5 m.
leaving an uncovered margin of 25cm or 0.25 m all around the room.
so, length = original length - 2 × uncovered margin
= 4.9 m - 2 × 0.25 m = 4.4 m

Breadth = original breadth -2 × uncovered margin
= 3.5 m - 2 × 0.25 m = 3 m

given, breadth of the carpet is 0.8 m
Then, length of carpet = area of carpet breadth of carpet
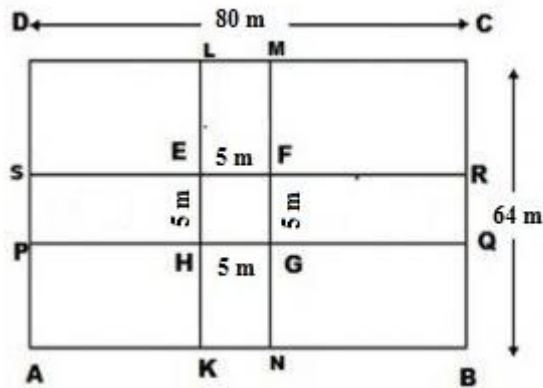= 4.4 m ×3 m0.8 m
= 16.5 m
So, length of carpet = 16.5 m

Now, cost = length of carpet × rate
= 16.5 × 80 = ₹ 1320
Hence, the total cost = ₹ 1320

Q. An 80 m by 64 m rectangular lawn has two roads, each 5 m wide, running through its middle, one parallel to its length and the other parallel to its breadth. Find the cost of gravelling the roads at Rs.40 per m.

Solution:
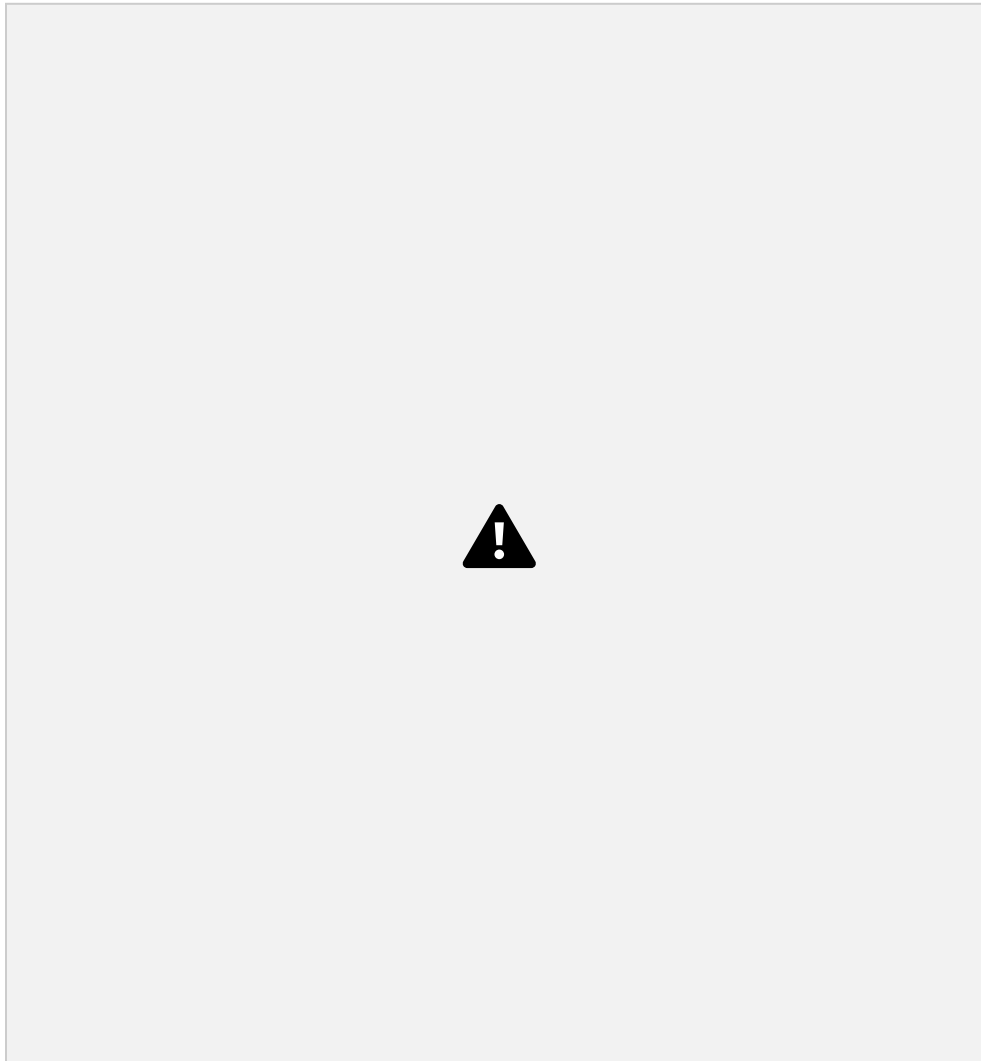

Area of the road=ar(KLMN)+ar(PQRS)−ar(EFGH)

=(64×5)+(80×5)−(5×5)

=320+400−25

=695 m

Cost of gravelling the roads per m = 40

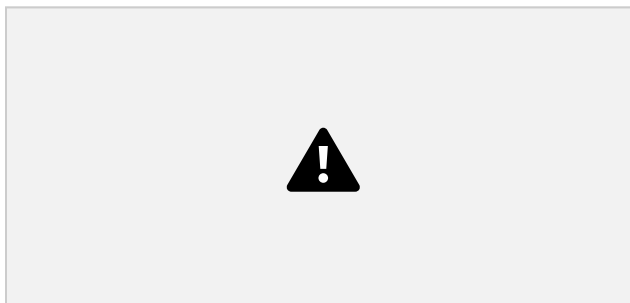Total cost of gravelling the roads =695×40=Rs.27800

Q. The cost of painting the four walls of a room 12 m long ar Rs.30 per m2 is Rs.7560 and the cost of covering the floor with mat at Rs.25 per m2 is Rs.2700. Find the dimensions of the room.

Solution:

Q. Find the length of the diagonal of a square whose area is 128 cm. Also, find its perimeter.

Solution:

Q. The cost of fencing a square lawn at Rs.14 per metre is Rs.28000. Find the cost of moving the lawn at Rs.54 per 100 m.

Solution:

Cost of fencing the lawn = Rs 28000
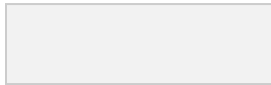Let l be the length of each side of the lawn. Then, the perimeter is 4l.
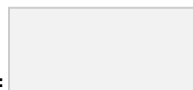We know:

Cost=Rate × Perimeter

⇒28000=14 × 4l

⇒28000 = 56l

Or,

[ ]

Area of the square lawn = 500 × 500 = 250000 m2
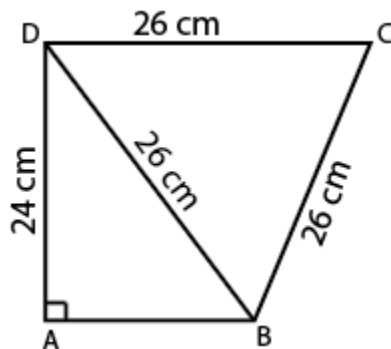Cost of mowing 100 m2 of the lawn = Rs 54

Cost of mowing 1 m2 of the lawn=Rs [ ]

∴ Cost of mowing 250000 m2 of the lawn= [ ] =Rs 135000

Q. Find the area of the quadrilateral ABCD in which AD = 24 cm, ∠ BAD = 90o and Δ BCD is an equilateral triangle having each side equal to 26 cm. Also, find the perimeter of the quadrilateral. [Given, √3 = 1.73.]

Solution:

ΔBDC is an equilateral triangle with side a = 26 cm

Area of ΔBDC $=\frac{\sqrt{3}a^2}{4}=\frac{\sqrt{3}\times26^2}{4}=\frac{\sqrt{3}\times6764}{4}=292.37$ cm2

By using Pythagoras theorem in the right-angled triangle ΔDAB, we get:

$AD^2+AB^2=BD^2$ $24^2+AB^2=26^2$ $AB^2=26^2-24^2=676-576=100$ $AB=10$ cm

Area of ΔABD $=\frac{1}{2}\times base\times height$ $\frac{1}{2}\times10\times24=120$ cm

Area of the quadrilateral = Area of ΔBDC + Area of ΔABD
=292.37+120=412.37 cm2

Perimeter of the quadrilateral =AB+AC+CD+AD=24+10+26+26=86 cm

Q. The area of a parallelogram is 392 m, If its altitude is twice the corresponding base, determine the base and the altitude.

Solution:

Let the base(b) be 'x'
Given altitude is twice the base
It means,altitude(h) = 2x
Area of a parallelogram = bh
Given area of the parallelogram = 392 m²
⇒(bh)=392m²
⇒(x)(2x)=392m²
⇒2x²=392m²
⇒x²=392m²/2
⇒x²=196m²
⇒x=√196m²
⇒x=14m.
Therefore, the base of the parallelogram(x)=14m and
the altitude of the parallelogram(2x)=2(14)=28m

Q. The adjacent sides of a parallelogram ABCD measure 34 cm and 20 cm, and the diagonal AC measures 42 cm. Find the area of the parallelogram.
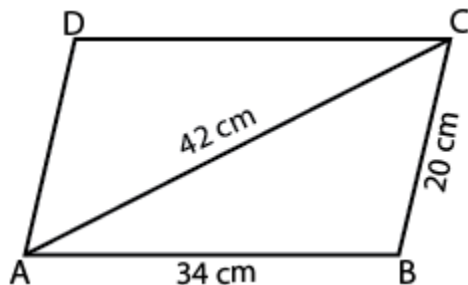
Solution:

Let ABCD is a parallelogram;
AD =20cm
CD =34 cm
and AC = 42 cm
in ΔADC;
s= 34+20+42 = 48;

As per Heron's formula area of triangle = $\sqrt{s(s-a)(s-b)(s-c)}$

Area of Δ ADC = $\sqrt{48(48-42)(48-34)(48-20)}$

Area of Δ ADC = $\sqrt{48\times6\times14\times28}$

Area of Δ ADC =336 cm²

Area of parallelogram = 2 × area of Δ ADC

= 672 cm²

Q. If the circumferrence of a circle and the perimeter of a square are equal then

(a) area of the circle = area of the square

(b) (area of the circle) > (area of the square)

(c) (area of the circle) < (area of the square)

(d) none of these

Solution:

Q. The radius of a wheel is 0.25 m. How many revolutions will it make in covering 11 km ?

(a) 2800 (b) 4000 (c) 5500 (d) 7000

Solution:

Radius =0.25 m

Circumference =2πr=2×227×0.25m

No: of revolutions =total distance circumference

=11000×72×22×0.25=7000 revolutions

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 17 Exercise 17.2

- **Clear Explanations:** These solutions provide step-by-step explanations for each problem, making it easy for students to understand complex concepts.
- **Expert Guidance:** Prepared by subject experts form Physics Wallah the solutions ensure accuracy and thorough coverage of all topics.
- **Improved Problem-Solving Skills:** By practicing these solutions, students can enhance their ability to solve problems related to the perimeter and areas of plane figures.

- **Exam Preparation:** The solutions cover a wide range of problems that are likely to appear in exams helping students prepare effectively.
- **Conceptual Understanding:** Detailed explanations help students build a strong foundation in geometry, particularly in calculating perimeters and areas.
- **Time Management:** With clear methods and strategies students can learn to solve problems more efficiently saving time during exams.