PM SHRI KENDRIYA VIDYALAYA GACHIBOWLI,GPRA CAMPUS,HYD-32
PRACTICE PAPER 06 (2023-24)
MENSURATION (ANSWERS)

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SUBJECT: MATHEMATICS	MAX. MARKS : 40
CLASS : VI	DURATION : 1½ hr

General Instructions:
(i). **All** questions are compulsory.
(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.
(iii). **Section A** comprises of **6 MCQs** of **1 mark** each. **Section B** comprises of **1 CCT question** of **4 marks** each which contains **4 MCQs**. **Section C** comprises of 3 questions of **2 marks** each. **Section D** comprises of 4 questions of **3 marks** each and **Section E** comprises of 3 questions of **4 marks** each.

<u>SECTION – A</u>
Questions 1 to 6 carry 1 mark each.

1. In the below figure, a square of side 1 cm is joined to a square of side 3 cm. The perimeter of the new figure is

←1cm→←―― 3cm ――→
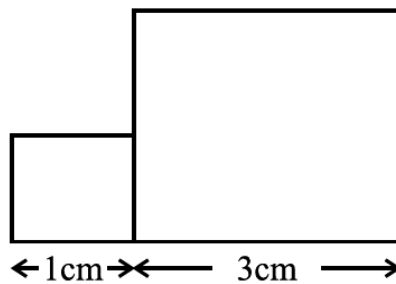
   (a) 13cm   (b) 14cm   (c) 15cm   (d) 16cm
   Ans: (b) 14cm

2. The length of a rectangular field is thrice its breadth. If the perimeter of this field is 800m, what is the length of the field?
   (a) 100m   (b) 140m   (c) 200m   (d) 300m
   Ans: (d) 300m
   Perimeter of a rectangle = 2 (length + breadth)
   Length of the rectangular field = 3 × breadth
   Therefore perimeter of field = 2 (3 × breadth + breadth) = 2 (4 × breadth) = 8 × breadth
   The given perimeter = 800m ⇒ 8 × breadth = 800 ⇒ breadth = 800 ÷ 8 = 100m
   So, length = 3 × 100m = 300m

3. A square-shaped park ABCD of side 100m has two equal rectangular flower beds, each of size 10m × 5m. Length of the boundary of the remaining park is
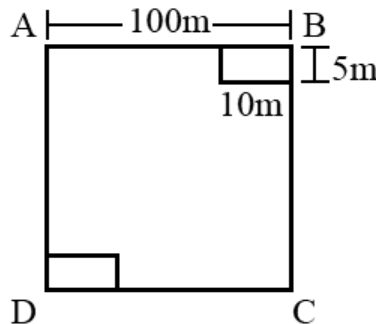
   (a) 360m   (b) 400m   (c) 340m   (d) 460m
   Ans: (b) 400m
   We know that, Length of the boundary = Perimeter of the boundary

Given, two rectangular flower beds, each of size 10m × 5m

So, perimeter of remaining park = 90 + 5 + 10 + 95 + 90 + 5 + 10 + 95 = 400 m

4. The side of a square is 10cm. How many times will the new perimeter become if the side of the square is doubled?
   (a) 2 times   (b) 4 times   (c) 6 times   (d) 8 times
   Ans: (a) 2 times
   As we know, the perimeter of the square = side × 4 = 10 × 4 = 40 cm
   Given, the side of the square = 10 cm
   The side of the square is doubled = 10 + 10 = 20 cm
   Therefore, the new perimeter becomes 2 times the side of the square is doubled.

5. The cost of fencing a rectangular field 34 m long and 18 m wide at Rs 2.25 per metre is
   (a) Rs 243   (b) Rs 234   (c) Rs 240   (d) Rs 334
   Ans: (b) Rs. 234
   For fencing the rectangular field, we need to find the perimeter of the rectangle.
   Length of the rectangle = 34m
   Breadth of the rectangle = 18m
   Perimeter of the rectangle = 2 (Length + Breadth) = 2 (34 + 18) m = 2 × 52 m = 104 m
   ∴ Cost of fencing the field at the rate of Rs. 2.25 per meter = Rs. 104 × 2.25 = Rs. 234

6. If the cost of fencing a rectangular field at Rs. 7.50 per metre is Rs. 600, and the length of the field is 24 m, then the breadth of the field is
   (a) 8 m   (b) 18 m   (c) 24 m   (d) 16 m
   Ans: (d) 16 m
   Cost of fencing the rectangular field = Rs. 600
   Rate of fencing the field = Rs. 7.50 per m
   Therefore, perimeter of the field = $\dfrac{Cost\ of\ fencing}{Rate\ of\ fencing}$ = $\dfrac{600}{7.50}$ = 80 m

   Now, length of the field = 24 m

   Therefore, breadth of the field = $\dfrac{Perimeter}{2}$ − Length = $\dfrac{80}{2}$ − 24 = 16 m

SECTION – B(CCT Questions)
Questions 7 to 10 carry 1 mark each.

CCT Question

Students of one international school are going to display the various school activities in school exhibition hall. In an exhibition hall, there are 24 green display boards each of length 1m 50cm and breadth 1m. There is a 100m long aluminium strip, which is used to frame these boards.

Based on the above, answer the following questions

7. What is the Perimeter of the one display board?
    (a) 10m   (b) 4m   (c) 5m   (d) 6m
    Ans: (c) 5m
    Length of the display board = 1 m 50 cm = 1.5 m
    Breadth of the display board = 1 m
    ∴ Perimeter of the one display board = 2 x (length + breadth)
    = 2 × (1.5 m × 1 m) = 2 x 2.5 m = 5 m

8. Find the Number of boards will be framed using the available aluminium strip.
    (a) 15   (b) 20   (c) 25   (d) 24
    Ans: (b) 20
    Number of boards will be framed using this strip = 100 / 5 = 20 strips

9. Find the Length of the aluminium strip required for the remaining boards.
    (a) 20m   (b) 24m   (c) 25m   (d) 26m
    Ans: (a) 20m
    Length of the aluminium strip required for the remaining boards = (120 -100)m = 20 m.

10. What is the area of the one display board?
    (a) 10m²   (b) 4m²   (c) 5m²   (d) none of these
    Ans: (d) none of these
    Area of the one display board = length x breadth = 1.5m x 1 m = 1.5m²

SECTION – C
Questions 11 to 13 carry 2 marks each.

11. A wire of length 20 m is to be folded in the form of a rectangle. How many rectangles can be formed by folding the wire if the sides are positive integers in metres?
    Ans: Length of wire 20 m is folded in the form of rectangle
    So the perimeter = 20 m
    It can be written as 2 (L + B) = 20 m
    On further calculation L + B = 10 m
    If the sides are positive integers in metres the possible dimensions are (1m, 9m), (2m, 8m), (3m, 7m), (4m, 6m) and (5m, 5m)
    Hence, five rectangles can be formed using the given wire.

12. The dimensions of a photographs are 30 cm × 20 cm. What length of wooden frame is needed to frame the picture?
    Ans: Dimensions of a photographs = 30 cm × 20 cm
    So the required length of the wooden frame can be determined from the perimeter of the photograph = 2 (L + B)
    By substituting the values = 2 (30 + 20) = 2 × 50 = 100 cm
    Hence, the length of the wooden frame required to frame the picture is 100 cm.

13. The area of a rectangle is 49 cm² and its breadth is 2.8 cm. Find the length of the rectangle.
    Ans: It is given that area of a rectangle = 49 cm²
    Breadth of a rectangle = 2.8 cm
    We know that, Area of a rectangle = L × B

It can be written as
L = Area/B = 49/2.8 = 17.5 cm
Hence, the length of the rectangle is 17.5 cm.

SECTION – D
Questions 14 to 17 carry 3 marks each.

14. Shikha runs around a square of side 75 m. Priya runs around a rectangle with length 60 m and breadth 45 m. Who covers the smaller distance?
Ans: Shikha runs around a square of side = 75 m
So the perimeter = 4 × 75 = 300 m
Priya runs around a rectangle having
Length = 60 m
Breadth = 45 m
So the distance covered can be found from the perimeter = 2 (L + B)
By substituting the values
Perimeter = 2 (60 + 45) = 2 × 105 = 210 m
Hence, Priya covers the smaller distance of 210 m.

15. To fix fence wires in a garden, 70 m long and 50 m wide, Arvind bought metal pipes for posts. He fixed a post every 5 metres apart. Each post was 2 m long. What is the total length of the pipes he bought for the posts?
Ans: The dimensions of garden are Length = 70 m and Breadth = 50 m
So the perimeter = 2 (L + B)
By substituting the values
Perimeter = 2 (70 + 50) = 2 × 120 = 240 m
Arvind fixes a post every 5 metres apart
No. of posts required = 240/5 = 48
The length of each post = 2 m
So the total length of the pipe required = 48 × 2 = 96 m
Hence, the total length of the pipes he bought for the posts is 96 m.

16. A rectangle has the area equal to that of a square of side 80 cm. If the breadth of the rectangle is 20 cm, find its length.
Ans: It is given that Side of a square = 80 cm
So the area of the square = side × side
By substituting the values, Area of square = 80 × 80 = 6400 cm^2
We know that area of rectangle = area of square = 6400 cm^2
Breadth = 20 cm
Area of rectangle = L × B
It can be written as L = Area/B = 6400/20 = 320 cm
Hence, the length of the rectangle is 320 cm.

17. A marble tile measures 15 cm × 20 cm. How many tiles will be required to cover a wall of size 4 m × 6 m?
Ans: Measure of marble tile = 15 cm × 20 cm
Size of wall = 4 m × 6 m = 400 cm × 600 cm
So we get area of tile = 15 cm × 20 cm = 300 cm^2
Area of wall = 400 cm × 600 cm = 240000 cm^2
No. of tiles required to cover the wall = Area of wall/ Area of one tile
Substituting the values, we get

No. of tiles required to cover the wall = 240000/300 = 800 tiles
Hence, 800 tiles are required to cover a wall of size 4 m × 6 m.

SECTION – E
Questions 18 to 20 carry 4 marks each.

18. What will happen to the area of a square if its side is:
(i) Tripled (ii) Increased by half of it.
Ans: (i) Tripled
Consider s as the original side of the square
We know that original area = s × s = s^2
If the side of the square is tripled we get
New side = 3s
So the new area of the square = 3s × 3s = $9s^2$
Hence, the area becomes 9 times more than that of the original area.
(ii) Increased by half of it
Consider s as the original side of the square
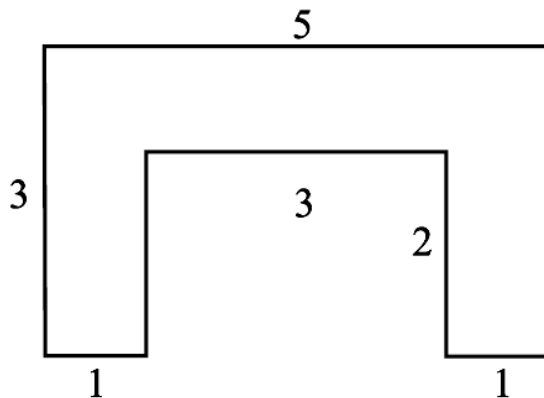We know that original area = s × s = s^2
If the side of the square is increased by half of it we get
New side = s + s/2 = 3s/2
So the new area of the square = 3s/2 × 3s/2 = $9s^2/4$
Hence, the area becomes 9/4 times more than that of the original area.

19. The below figure have been split into rectangles. Find their areas. (The measures are given in centimetres)

Ans:
The given figure has three rectangles I, II and III.
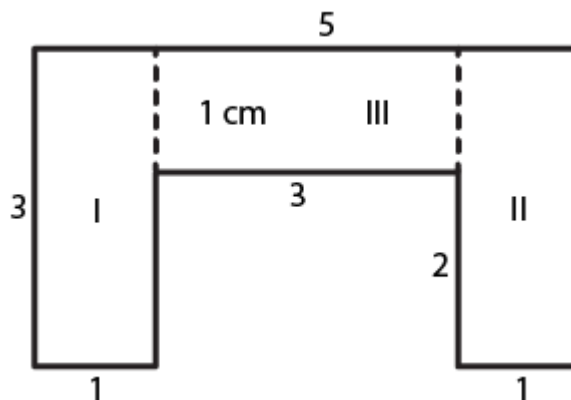So the area of rectangle I = L × B = 3 × 1 = 3 cm^2
Area of rectangle II = L × B = 3 × 1 = 3 cm^2
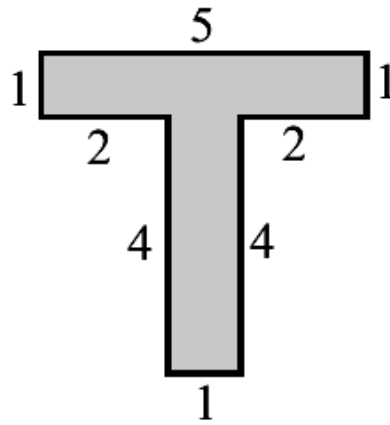Area of rectangle III = L × B = 3 × 1 = 3 cm^2
So the total area of the figure = Area of rectangle I + Area of rectangle II + Area of rectangle III
By substituting the values
Total area of the figure = 3 + 3 + 3 = 9 cm^2

20. Split the following shapes into rectangles and find the area of each. (The measures are given in centimetres)

Ans: The given figure has two rectangles I and II.

So the area of rectangle I = L × B = 5 × 1 = 5 cm^2

The same way, area of rectangle II = L × B = 4 × 1 = 4 cm^2

So the total area of the figure = Area of rectangle I + Area of rectangle II

By substituting the values

Total area of the figure = 5 + 4 = 9 cm^2