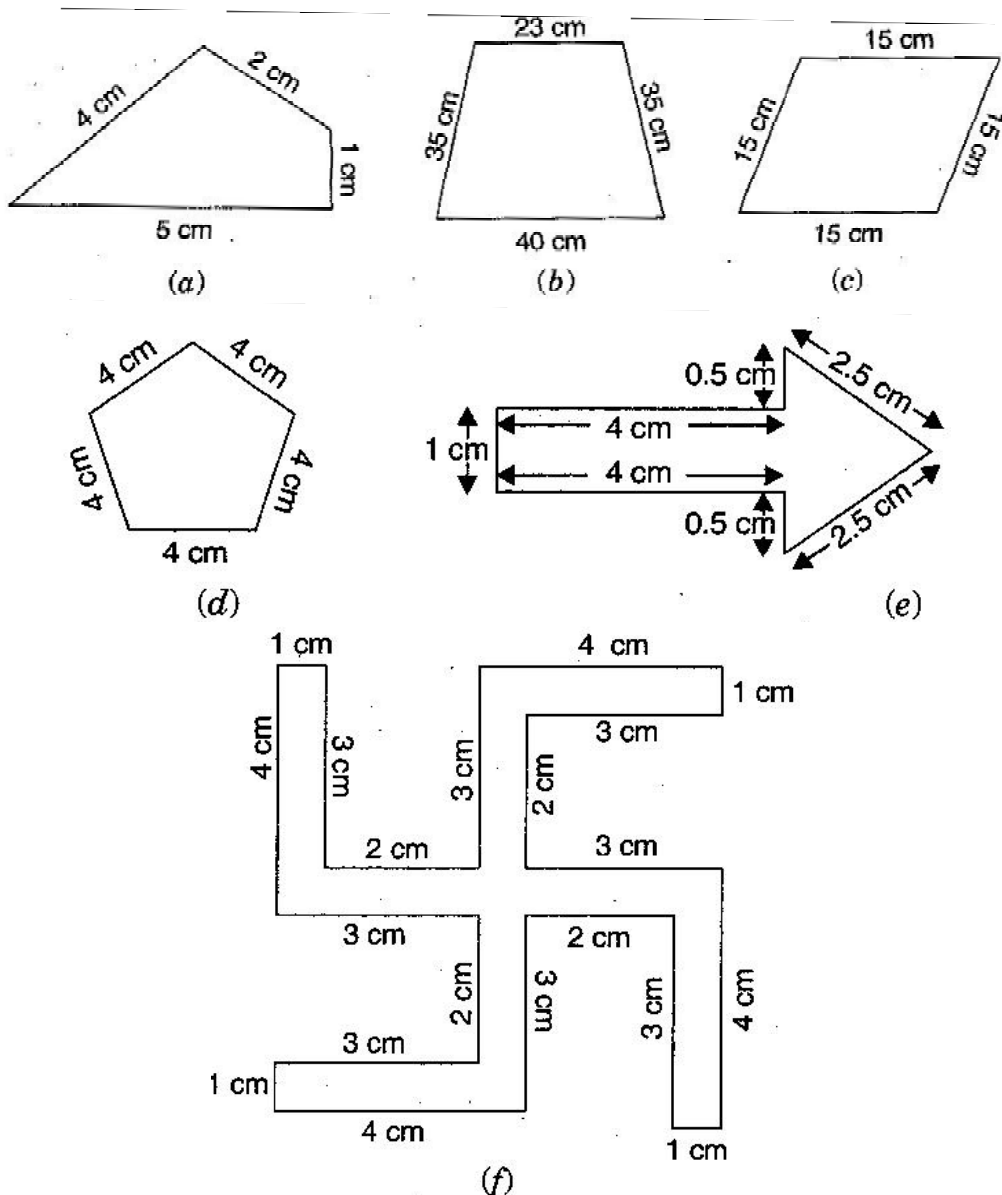


---

**Class -VI Mathematics (Ex. 10.1)**  
**Questions**

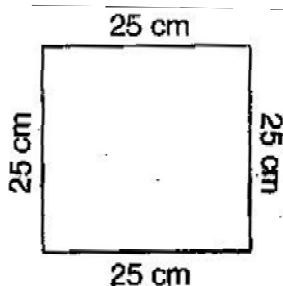
---

1. Find the perimeter of each of the following figures:

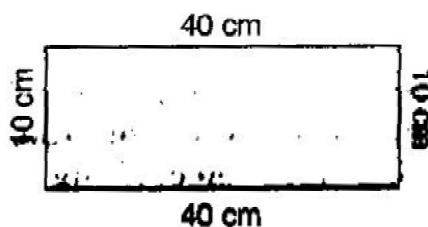


2. The lid of a rectangular box of sides 40 cm by 10 cm is sealed all round with tape. What is the length of the tape required?
  3. A table-top measures 2 m 25 cm by 1 m 50 cm. What is the perimeter of the table-top?
  4. What is the length of the wooden strip required to frame a photograph of length and breadth 32 cm and 21 cm respectively?
-

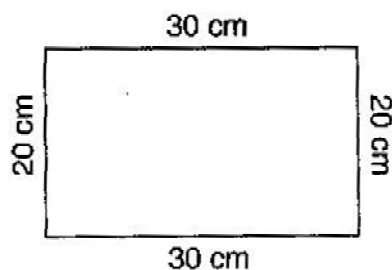
- 
5. A rectangular piece of land measures 0.7 km by 0.5 km. Each side is to be fenced with 4 rows of wires. What is the length of the wire needed?
  6. Find the perimeter of each of the following shapes:
    - (a) A triangle of sides 3 cm, 4 cm and 5 cm.
    - (b) An equilateral triangle of side 9 cm.
    - (c) An isosceles triangle with equal sides 8 cm each and third side 6 cm.
  7. Find the perimeter of a triangle with sides measuring 10 cm, 14 cm and 15 cm.
  8. Find the perimeter of a regular hexagon with each side measuring 8 cm.
  9. Find the side of the square whose perimeter is 20 m.
  10. The perimeter of a regular pentagon is 100 cm. How long is its each side?
  11. A piece of string is 30 cm long. What will be the length of each side if the string is used to form:
    - (a) a square
    - (b) an equilateral triangle
    - (c) a regular hexagon?
  12. Two sides of a triangle are 12 cm and 14 cm. The perimeter of the triangle is 36 cm. What is the third side?
  13. Find the cost of fencing a square park of side 250 m at the rate of ₹ 20 per meter.
  14. Find the cost of fencing a rectangular park of length 175 m and breadth 125 m at the rate of ₹ 12 per meter.
  15. Sweety runs around a square park of side 75 m. Bulbul runs around a rectangular park with length of 60 m and breadth 45 m. Who covers less distance?
  16. What is the perimeter of each of the following figures? What do you infer from the answer?



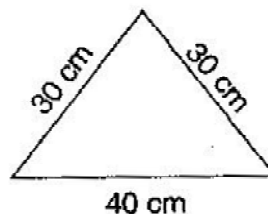
(a)



(b)

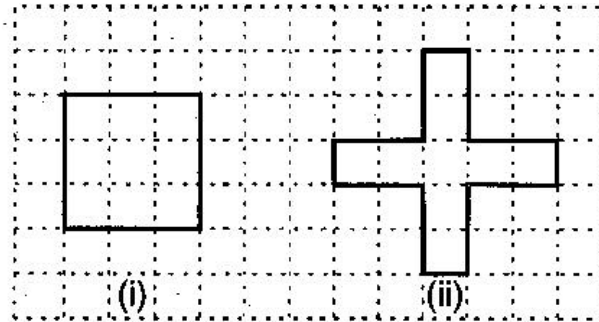


(c)



(d)

- 
17. Avneet buys 9 square paving slabs, each with a side  $\frac{1}{2}$  m. He lays them in the form of a square



- (a) What is the perimeter of his arrangement?
- (b) Shari does not like his arrangement. She gets him to lay them out like a cross. What is the perimeter of her arrangement?
- (c) Which has greater perimeter?
- (d) Avneet wonders, if there is a way of getting an even greater perimeter. Can you find a way of doing this? (The paving slabs must meet along complete edges, i.e., they cannot be broken.)
-

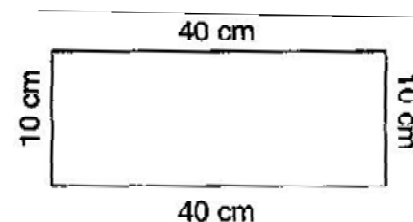
---

**Class –VI Mathematics (Ex. 10.1)****Answers**

---

1. (a) Perimeter = Sum of all the sides  
 $= 4 \text{ cm} + 2 \text{ cm} + 1 \text{ cm} + 5 \text{ cm} = 12 \text{ cm}$
- (b) Perimeter = Sum of all the sides  
 $= 23 \text{ cm} + 35 \text{ cm} + 40 \text{ cm} + 35 \text{ cm} = 133 \text{ cm}$
- (c) Perimeter = Sum of all the sides  
 $= 15 \text{ cm} + 15 \text{ cm} + 15 \text{ cm} + 15 \text{ cm} = 60 \text{ cm}$
- (d) Perimeter = Sum of all the sides  
 $= 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} + 4 \text{ cm} = 20 \text{ cm}$
- (e) Perimeter = Sum of all the sides  
 $1 \text{ cm} + 4 \text{ cm} + 0.5 \text{ cm} + 2.5 \text{ cm} + 2.5 \text{ cm} + 0.5 \text{ cm} + 4 \text{ cm} = 15 \text{ cm}$
- (f) Perimeter = Sum of all the sides  
 $= 4 \text{ cm} + 1 \text{ cm} + 3 \text{ cm} + 2 \text{ cm} + 3 \text{ cm} + 4 \text{ cm} + 1 \text{ cm} + 3 \text{ cm} + 2 \text{ cm} + 3 \text{ cm} + 4 \text{ cm}$   
 $1 \text{ cm} + 3 \text{ cm} + 2 \text{ cm} + 3 \text{ cm} + 4 \text{ cm} + 1 \text{ cm} + 3 \text{ cm} + 2 \text{ cm} + 3 \text{ cm}$   
 $= 52 \text{ cm}$

2. Total length of tape required = Perimeter of rectangle  
 $= 2 (\text{length} + \text{breadth})$   
 $= 2 (40 + 10)$   
 $= 2 \times 50$   
 $= 100 \text{ cm} = 1 \text{ m}$



Thus, the total length of tape required is 100 cm or 1 m.

3. Length of table top = 2 m 25 cm = 2.25 m  
Breadth of table top = 1 m 50 cm = 1.50 m  
Perimeter of table top =  $2 \times (\text{length} + \text{breadth})$   
 $= 2 \times (2.25 + 1.50)$   
 $= 2 \times 3.75 = 7.50 \text{ m}$

Thus, perimeter of table top is 7.5 m.

4. Length of wooden strip = Perimeter of photograph  
Perimeter of photograph =  $2 \times (\text{length} + \text{breadth})$   
 $= 2 (32 + 21)$   
 $= 2 \times 53 \text{ cm} = 106 \text{ cm}$

Thus, the length of the wooden strip required is equal to 106 cm.

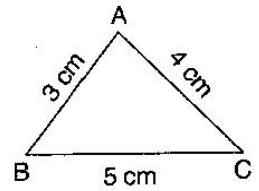
5. Since the 4 rows of wires are needed. Therefore the total length of wires is equal to 4 times the perimeter of rectangle.
-

---

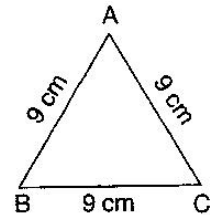

$$\begin{aligned}\text{Perimeter of field} &= 2 \times (\text{length} + \text{breadth}) = 2 \times (0.7 + 0.5) = 2 \times 1.2 = 2.4 \text{ km} \\ &= 2.4 \times 1000 \text{ m} = 2400 \text{ m}\end{aligned}$$

Thus, the length of wire =  $4 \times 2400 = 9600 \text{ m} = 9.6 \text{ m}$

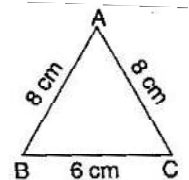
6. (a) Perimeter of  $\triangle ABC = AB + BC + CA$   
 $= 3 \text{ cm} + 5 \text{ cm} + 4 \text{ cm}$   
 $= 12 \text{ cm}$



(b) Perimeter of equilateral  $\triangle ABC = 3 \times \text{side}$   
 $= 3 \times 9 \text{ cm}$   
 $= 27 \text{ cm}$



(c) Perimeter of  $\triangle ABC = AB + BC + CA$   
 $= 8 \text{ cm} + 6 \text{ cm} + 8 \text{ cm}$   
 $= 22 \text{ cm}$



7. Perimeter of triangle = Sum of all three sides  
 $= 10 \text{ cm} + 14 \text{ cm} + 15 \text{ cm}$   
 $= 39 \text{ cm}$

Thus, perimeter of triangle is 39 cm.

8. Perimeter of Hexagon =  $6 \times \text{length of one side}$   
 $= 6 \times 8 \text{ m}$   
 $= 48 \text{ m}$

Thus, the perimeter of hexagon is 48 m.

9. Perimeter of square =  $4 \times \text{side}$

$$\Rightarrow 20 = 4 \times \text{side} \qquad \Rightarrow \text{side} = \frac{20}{4} = 5 \text{ cm}$$

Thus, the side of square is 5 cm.

10. Perimeter of regular pentagon = 100 cm

$$\Rightarrow 5 \times \text{side} = 100 \text{ cm} \qquad \Rightarrow \text{side} = \frac{100}{5} = 20 \text{ cm}$$

Thus, the side of regular pentagon is 20 cm.

11. Length of string = Perimeter of each figure

(a) Perimeter of square = 30 cm

$$\Rightarrow 4 \times \text{side} = 30 \text{ cm} \qquad \Rightarrow \text{side} = \frac{30}{4} = 7.5 \text{ cm}$$


---

---

Thus, the length of each side of square is 7.5 cm.

(b) Perimeter of equilateral triangle = 30 cm

$$\Rightarrow 3 \times \text{side} = 30 \text{ cm} \qquad \Rightarrow \text{side} = \frac{30}{3} = 10 \text{ cm}$$

Thus, the length of each side of equilateral triangle is 10 cm.

(c) Perimeter of hexagon = 30 cm

$$\Rightarrow 6 \times \text{side} = 30 \text{ cm} \qquad \Rightarrow \text{side} = \frac{30}{6} = 5 \text{ cm}$$

Thus, the side of each side of hexagon is 5 cm.

12. Let the length of third side be  $x$  cm.

Length of other two side are 12 cm and 14 cm.

Now, Perimeter of triangle = 36 cm

$$\Rightarrow 12 + 14 + x = 36 \qquad \Rightarrow 26 + x = 36$$

$$\Rightarrow x = 36 - 26 \qquad \Rightarrow x = 10 \text{ cm}$$

Thus, the length of third side is 10 cm.

13. Side of square = 250 m

$$\begin{aligned} \text{Perimeter of square} &= 4 \times \text{side} \\ &= 4 \times 250 = 1000 \text{ m} \end{aligned}$$

Since, cost of fencing of per meter = ₹ 20

Therefore, cost of fencing of 1000 meters =  $20 \times 1000 = ₹ 20,000$

14. Length of rectangular park = 175 m

Breadth of rectangular park = 125 m

$$\begin{aligned} \text{Perimeter of park} &= 2 \times (\text{length} + \text{breadth}) \\ &= 2 \times (175 + 125) \\ &= 2 \times 300 = 600 \text{ m} \end{aligned}$$

Since, cost of fencing park per meter = ₹ 12

Therefore, cost of fencing park of 600 m =  $12 \times 600 = ₹ 7,200$

15. Distance covered by Sweety = Perimeter of square park

$$\begin{aligned} \text{Perimeter of square} &= 4 \times \text{side} \\ &= 4 \times 75 = 300 \text{ m} \end{aligned}$$

Thus, distance covered by Sweety is 300 m.

Now, distance covered by Bulbul = Perimeter of rectangular park

$$\begin{aligned} \text{Perimeter of rectangular park} &= 2 \times (\text{length} + \text{breadth}) \\ &= 2 \times (60 + 45) \\ &= 2 \times 105 = 210 \text{ m} \end{aligned}$$

Thus, Bulbul covers the distance of 210 m.

And Bulbul covers less distance.

---

- 
16. (a) Perimeter of square =  $4 \times \text{side}$   
 $= 4 \times 25 = 100 \text{ cm}$
- (b) Perimeter of rectangle =  $2 \times (\text{length} + \text{breadth})$   
 $= 2 \times (40 + 10)$   
 $= 2 \times 50 = 100 \text{ cm}$
- (c) Perimeter of rectangle =  $2 \times (\text{length} + \text{breadth})$   
 $= 2 \times (30 + 20)$   
 $= 2 \times 50 = 100 \text{ cm}$
- (d) Perimeter of triangle = Sum of all sides  
 $= 30 \text{ cm} + 30 \text{ cm} + 40 \text{ cm} = 100 \text{ cm}$
- Thus, all the figures have same perimeter.

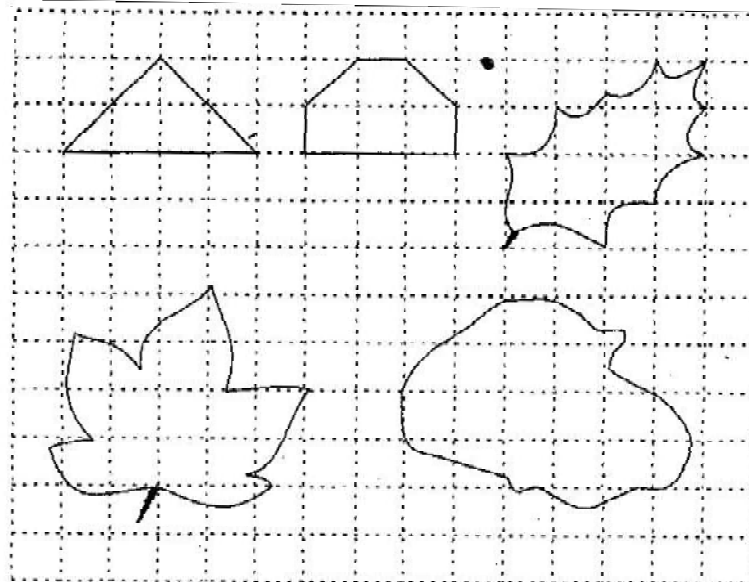
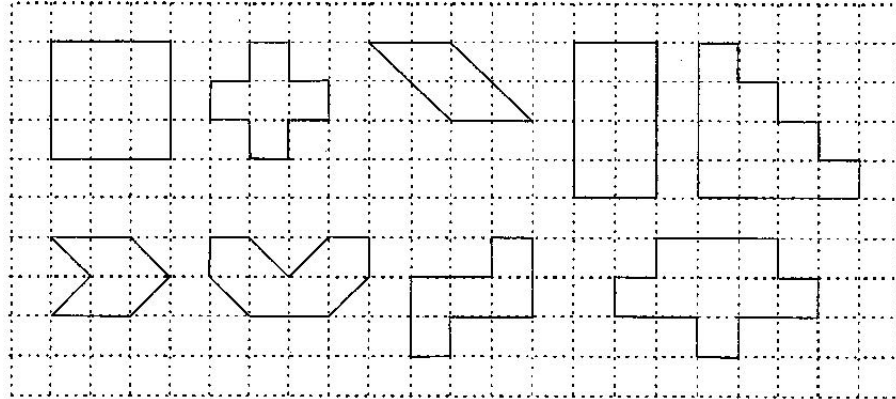
17. (a) 6 m  
(b) 10 m  
(c) Second arrangement has greater perimeter.  
(d) Yes, if all the squares are arranged in row, the perimeter be 10 cm.
-

---

**Class -VI Mathematics (Ex. 10.2)**  
**Questions**

---

1. Find the areas of the following figures by counting squares:





---

---

**Class –VI Mathematics (Ex. 10.2)**

**Answers**

---

1. (a) Number of filled square = 9  
∴ Area covered by squares =  $9 \times 1 = 9$  sq. units
- (b) Number of filled squares = 5  
∴ Area covered by filled squares =  $5 \times 1 = 5$  sq. units
- (c) Number of full filled squares = 2  
Number of half filled squares = 4  
∴ Area covered by full filled squares =  $2 \times 1 = 2$  sq. units  
And Area covered by half filled squares =  $\cancel{4} \times \frac{1}{\cancel{2}} = 2$  sq. units  
∴ Total area =  $2 + 2 = 4$  sq. units
- (d) Number of filled squares = 8  
∴ Area covered by filled squares =  $8 \times 1 = 8$  sq. units
- (e) Number of filled squares = 10  
∴ Area covered by filled squares =  $10 \times 1 = 10$  sq. units
- (f) Number of full filled squares = 2  
Number of half filled squares = 4  
∴ Area covered by full filled squares =  $2 \times 1 = 2$  sq. units  
And Area covered by half filled squares =  $\cancel{4} \times \frac{1}{\cancel{2}} = 2$  sq. units  
∴ Total area =  $2 + 2 = 4$  sq. units
- (g) Number of full filled squares = 4  
Number of half filled squares = 4  
∴ Area covered by full filled squares =  $4 \times 1 = 4$  sq. units  
And Area covered by half filled squares =  $\cancel{4} \times \frac{1}{\cancel{2}} = 2$  sq. units  
∴ Total area =  $4 + 2 = 6$  sq. units
- (h) Number of filled squares = 5  
∴ Area covered by filled squares =  $5 \times 1 = 5$  sq. units
-

---

(i) Number of filled squares = 9

$\therefore$  Area covered by filled squares =  $9 \times 1 = 9$  sq. units

(j) Number of full filled squares = 2

Number of half filled squares = 4

$\therefore$  Area covered by full filled squares =  $2 \times 1 = 2$  sq. units

And Area covered by half filled squares =  $\cancel{4} \times \frac{1}{2} = 2$  sq. units

$\therefore$  Total area =  $2 + 2 = 4$  sq. units

(k) Number of full filled squares = 4

Number of half filled squares = 2

$\therefore$  Area covered by full filled squares =  $4 \times 1 = 4$  sq. units

And Area covered by half filled squares =  $\cancel{2} \times \frac{1}{2} = 1$  sq. units

$\therefore$  Total area =  $4 + 1 = 5$  sq. units

(l) Number of full filled squares = 3

Number of half filled squares = 10

$\therefore$  Area covered by full filled squares =  $3 \times 1 = 3$  sq. units

And Area covered by half filled squares =  $\cancel{10} \times \frac{1}{2} = 5$  sq. units

$\therefore$  Total area =  $3 + 5 = 8$  sq. units

(m) Number of full filled squares = 7

Number of half filled squares = 14

$\therefore$  Area covered by full filled squares =  $7 \times 1 = 7$  sq. units

And Area covered by half filled squares =  $\cancel{14} \times \frac{1}{2} = 7$  sq. units

$\therefore$  Total area =  $7 + 7 = 14$  sq. units

(n) Number of full filled squares = 10

Number of half filled squares = 16

$\therefore$  Area covered by full filled squares =  $10 \times 1 = 10$  sq. units

And Area covered by half filled squares =  $\cancel{16} \times \frac{1}{2} = 8$  sq. units

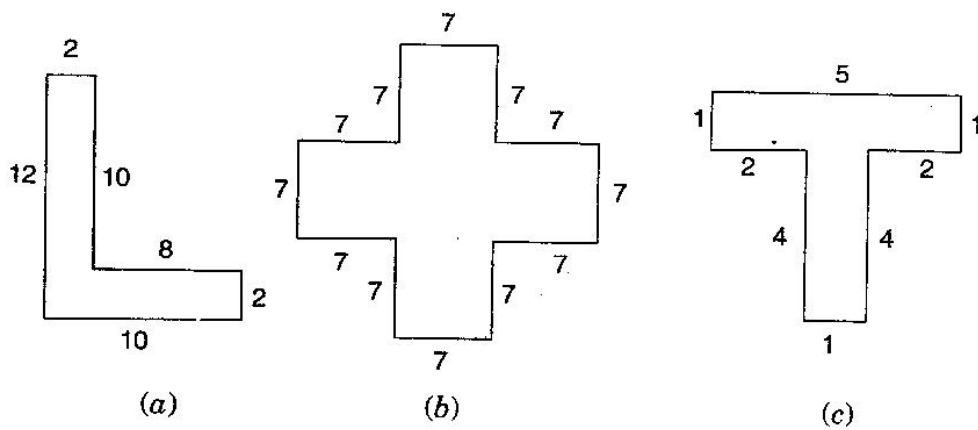
$\therefore$  Total area =  $10 + 8 = 18$  sq. units

---

## Questions

- 
- Figure 1 consists of two diagrams, (a) and (b), showing stepped profiles. Diagram (a) shows a profile with segments labeled 1, 2, 3, 4. Diagram (b) shows a profile with segments labeled 1, 2, 3, 4, 5.

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



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
-

---

---

**Class -VI Mathematics (Ex. 10.3)**

**Answers**

---

1. (a) Area of rectangle = length x breadth  
= 3 cm x 4 cm = 12 cm<sup>2</sup>  
(b) Area of rectangle = length x breadth  
= 12 m x 21 m = 252 m<sup>2</sup>  
(c) Area of rectangle = length x breadth  
= 2 km x 3 km = 6 km<sup>2</sup>  
(d) Area of rectangle = length x breadth  
= 2 m x 70 cm = 2 m x 0.7 m = 1.4 m<sup>2</sup>
2. (a) Area of square = side x side = 10 cm x 10 cm = 100 cm<sup>2</sup>  
(b) Area of square = side x side = 14 cm x 14 cm = 196 cm<sup>2</sup>  
(c) Area of square = side x side = 5 m x 5 m = 25 m<sup>2</sup>
3. (a) Area of rectangle = length x breadth = 9 m x 6 m = 54 m<sup>2</sup>  
(b) Area of rectangle = length x breadth = 3 m x 17 m = 51 m<sup>2</sup>  
(c) Area of rectangle = length x breadth = 4 m x 14 m = 56 m<sup>2</sup>

Thus, the rectangle (c) has largest area, i.e. 56 m<sup>2</sup> and rectangle (b) has smallest area, i.e., 56 m<sup>2</sup>.

4. Length of rectangle = 50 m and Area of rectangle = 300 m<sup>2</sup>  
Since, Area of rectangle = length x breadth

Therefore, Breadth =  $\frac{\text{Area of rectangle}}{\text{Length}} = \frac{300}{50} = 6 \text{ m}$

Thus, the breadth of the garden is 6 m.

5. Length of land = 500 m and Breadth of land = 200 m  
Area of land = length x breadth = 500 m x 200 m = 1,00,000 m<sup>2</sup>  
∴ Cost of tilling 100 sq. m of land = ₹ 8  
∴ Cost of tilling 1,00,000 sq. m of land =  $\frac{8 \times 100000}{100} = ₹ 8000$
6. Length of table = 2 m and breadth of table = 1 m 50 cm = 1.50 m  
Area of table = length x breadth  
= 2 m x 1.50 m = 3 m<sup>2</sup>
7. Length of room = 4 m and breadth of room = 3 m 50 cm = 3.50 m
-

---


$$\begin{aligned}\text{Area of carpet} &= \text{length} \times \text{breadth} \\ &= 4 \times 3.50 = 14 \text{ m}^2\end{aligned}$$

8. Length of floor = 5 m and breadth of floor = 4 m

$$\begin{aligned}\text{Area of floor} &= \text{length} \times \text{breadth} \\ &= 5 \text{ m} \times 4 \text{ m} = 20 \text{ m}^2\end{aligned}$$

Now, Side of square carpet = 3 m

$$\text{Area of square carpet} = \text{side} \times \text{side} = 3 \times 3 = 9 \text{ m}^2$$

$$\text{Area of floor that is not carpeted} = 20 \text{ m}^2 - 9 \text{ m}^2 = 11 \text{ m}^2$$

9. Side of square bed = 1 m

$$\text{Area of square bed} = \text{side} \times \text{side} = 1 \text{ m} \times 1 \text{ m} = 1 \text{ m}^2$$

$$\therefore \text{Area of 5 square beds} = 1 \times 5 = 5 \text{ m}^2$$

Now, Length of land = 5 m and breadth of land = 4 m

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

$$\begin{aligned}\text{Area of remaining part} &= \text{Area of land} - \text{Area of 5 flower beds} \\ &= 20 \text{ m}^2 - 5 \text{ m}^2 = 15 \text{ m}^2\end{aligned}$$

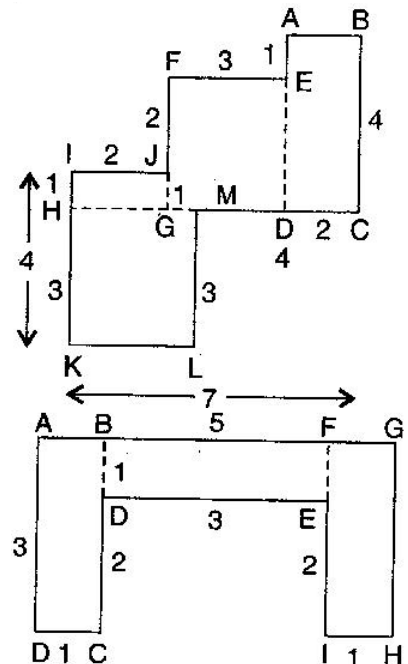
10. (a) Area of HKLM =  $3 \times 3 = 9 \text{ cm}^2$

$$\text{Area of IJGH} = 1 \times 2 = 2 \text{ cm}^2$$

$$\text{Area of FEDG} = 3 \times 3 = 9 \text{ cm}^2$$

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

$$\text{Total area of the figure} = 9 + 2 + 9 + 8 = 28 \text{ cm}^2$$



- (b) Area of ABCD =  $3 \times 1 = 3 \text{ cm}^2$

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

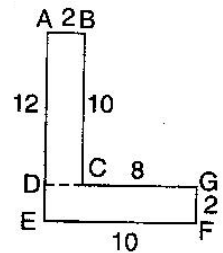
$$\text{Area of FGHI} = 3 \times 1 = 3 \text{ cm}^2$$

$$\text{Total area of the figure} = 3 + 3 + 3 = 9 \text{ cm}^2$$

11. (a) Area of rectangle ABCD =  $2 \times 10 = 20 \text{ cm}^2$

$$\text{Area of rectangle DEFG} = 10 \times 2 = 20 \text{ cm}^2$$

$$\text{Total area of the figure} = 20 + 20 = 40 \text{ cm}^2$$



(b) There are 5 squares each of side 7 cm.

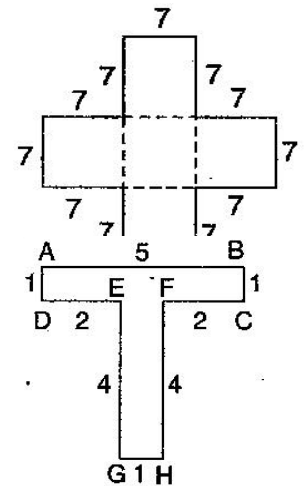
$$\text{Area of one square} = 7 \times 7 = 49 \text{ cm}^2$$

$$\text{Area of 5 squares} = 49 \times 5 = 245 \text{ cm}^2$$

(c) Area of rectangle ABCD =  $5 \times 1 = 5 \text{ cm}^2$

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

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



12. (a) Area of region =  $100 \text{ cm} \times 144 \text{ cm} = 14400 \text{ cm}^2$

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

$$\begin{aligned} \text{Number of tiles} &= \frac{\text{Area of region}}{\text{Area of one tile}} \\ &= \frac{14400}{60} = 240 \end{aligned}$$

Thus, 240 tiles are required.

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

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

$$\begin{aligned} \text{Number of tiles} &= \frac{\text{Area of region}}{\text{Area of one tile}} \\ &= \frac{2520}{60} = 42 \end{aligned}$$

Thus, 42 tiles are required.