

Chapter 06 Perimeter and Area

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Mindmap

- Perimeter
 - Definition: Total length of the boundary of a closed figure
 - Units: cm, m, km
 - Perimeter of Rectangle = $2 \times (\text{Length} + \text{Breadth})$
 - Perimeter of Square = $4 \times \text{Side}$
 - Perimeter of Equilateral Triangle = $3 \times \text{Side}$
 - Regular shapes: All sides equal \rightarrow Perimeter = Number of sides \times Length of one side
- Area
 - Definition: Region enclosed by a closed figure
 - Units: cm^2 , m^2
 - Area by counting squares (on graph paper)
 - Area of Rectangle = Length \times Breadth
 - Area of Square = Side \times Side = Side^2

Notes with Relevant Examples

1. Perimeter of a Rectangle
Example: A rectangle has length = 8 cm, breadth = 5 cm
Perimeter = $2 \times (8 + 5) = 2 \times 13 = 26$ cm
2. Perimeter of a Square
Example: Side = 6 cm
Perimeter = $4 \times 6 = 24$ cm
3. Perimeter of an Equilateral Triangle
Example: Side = 7 cm
Perimeter = $3 \times 7 = 21$ cm
4. Area of a Rectangle
Example: Length = 9 m, Breadth = 4 m
Area = $9 \times 4 = 36$ m^2
5. Area of a Square
Example: Side = 5 cm
Area = $5 \times 5 = 25$ cm^2
6. Finding Area by Counting Squares
If a shape covers 12 full squares on graph paper (each 1 cm^2), area = 12 cm^2

Unit Test

1. Find the perimeter of a rectangle with length 12 cm and breadth 8 cm.
2. What is the perimeter of a square of side 9 m?
3. The side of an equilateral triangle is 10 cm. Find its perimeter.
4. Find the area of a rectangle having length 15 cm and breadth 6 cm.
5. The side of a square is 11 cm. Find its area.
6. A rectangular garden is 25 m long and 15 m wide. Find the length of wire needed to fence it.
7. If the perimeter of a square is 48 cm, find the length of its side.
8. The area of a rectangle is 84 cm^2 . If its breadth is 7 cm, find its length.

Worksheet

1. Find the perimeter of a rectangle with length 14 cm and breadth 9 cm.
2. The side of a square is 13 cm. Find its perimeter and area.
3. An equilateral triangle has each side 15 cm. What is its perimeter?
4. The length and breadth of a room are 10 m and 8 m respectively. Find the cost of tiling it at ₹45 per m^2 .
5. Find the side of a square whose perimeter is 60 cm.
6. A rectangular field is 40 m long and 25 m wide. Find the cost of fencing it at ₹30 per metre.
7. The area of a square is 144 cm^2 . Find its side and perimeter.
8. A rectangle has area 96 cm^2 and length 12 cm. Find its breadth and perimeter.

Unit Test – Solutions

1. Perimeter = $2 \times (12 + 8) = 2 \times 20 = 40$ cm
2. Perimeter = $4 \times 9 = 36$ m
3. Perimeter = $3 \times 10 = 30$ cm
4. Area = $15 \times 6 = 90$ cm²
5. Area = $11 \times 11 = 121$ cm²
6. Length of wire = Perimeter = $2 \times (25 + 15) = 2 \times 40 = 80$ m
7. Side = Perimeter $\div 4 = 48 \div 4 = 12$ cm
8. Length = Area \div Breadth = $84 \div 7 = 12$ cm

Worksheet – Solutions

1. Perimeter = $2 \times (14 + 9) = 2 \times 23 = 46$ cm
2. Perimeter = $4 \times 13 = 52$ cm; Area = $13 \times 13 = 169$ cm²
3. Perimeter = $3 \times 15 = 45$ cm
4. Area = $10 \times 8 = 80$ m²; Cost = $80 \times 45 = ₹3600$
5. Side = $60 \div 4 = 15$ cm
6. Perimeter = $2 \times (40 + 25) = 2 \times 65 = 130$ m; Cost = $130 \times 30 = ₹3900$
7. Side = $\sqrt{144} = 12$ cm; Perimeter = $4 \times 12 = 48$ cm
8. Breadth = $96 \div 12 = 8$ cm; Perimeter = $2 \times (12 + 8) = 40$ cm