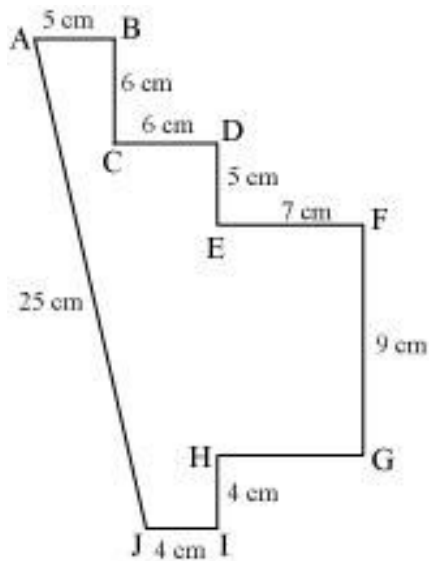


Perimeter and Area of Plane Figures

- The perimeter of a closed figure is the distance covered along the boundary of the figure when we go around it once. Its units are cm, m etc.

Example: Let us find the perimeter of the following figure.



Perimeter of ABCDEFGHIJA = AB + BC + CD + DE + EF + FG + GH + HI + IJ + JA

$$= (5 + 6 + 6 + 5 + 7 + 9 + 7 + 4 + 4 + 25) \text{ cm}$$

$$= 78 \text{ cm}$$

Perimeter of an equilateral triangle = $3 \times$ length of a side

Perimeter of a square = $4 \times$ length of a side

In general, perimeter of a regular closed polygon = Number of sides of the polygon $\times$ length of each side

Example:

If a farmer wants to fence a square field of length 50 m with 5 rounds of wire then what is the length of the wire required?

Solution:

$$\begin{aligned}\text{Length of wire required} &= 5 \times (\text{perimeter of square field}) \\ &= 5 \times (4 \times \text{side}) \\ &= 5 \times [(4 \times 50) \text{ m}] \\ &= 1000 \text{ m}\end{aligned}$$

- Perimeter of a rectangle = 2 (length + breadth)

Example:

What is the perimeter of a rectangular field whose length and breadth are 15 m and 8 m respectively?

Solution:

$$\text{Perimeter of rectangular field} = 2 (15 \text{ m} + 8 \text{ m}) = (2 \times 23) \text{ m} = 46 \text{ m}$$

- Area of a rectangle is given by the formula:

$$\text{Area of a rectangle} = \text{length} \times \text{breadth}$$

Example: How much carpet is required to cover a rectangular floor of length 25 m and breadth 18 m?

Solution: Area of the carpet required = Area of rectangular floor

$$= 25 \text{ m} \times 18 \text{ m} = 450 \text{ m}^2$$

- Area of a square is given by the formula:

$$\text{Area of a square} = \text{side} \times \text{side}$$

Example: What is the area of a square park of side 10 m 20 cm?

Solution: Length of park = 10 m 20 cm = 10.2 m

$$\text{Area of park} = 10.2 \text{ m} \times 10.2 \text{ m} = 104.04 \text{ m}^2$$