



Area of a Square

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Area is the amount of space occupied by a square on a flat surface.

A square is a four-sided shape where all sides are equal in length.

The formula for calculating the area of a square is:

Formula

$$\text{Area} = \text{Side} \times \text{Side}$$

The unit of area is always in square units (e.g., cm^2 , m^2 , km^2).

Example Calculations

Example 1:

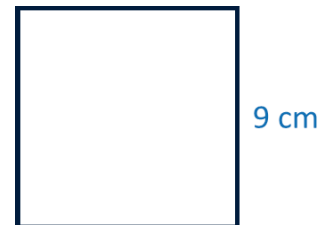
Find the area of a square with side = 9 cm.

Solution:

$$\text{Area} = \text{Side} \times \text{Side}$$

$$= 9 \times 9$$

$$= 81 \text{ cm}^2$$



Example 2:

A square field has an area of 144 m^2 . Find the length of one side.

Solution:

$$\text{Area} = \text{Side}^2$$

$$144 = \text{Side}^2$$

$$\text{Side} = \sqrt{144} = 12 \text{ m}$$



Example 3:

Convert the area of a square plot of $5 \text{ m} \times 5 \text{ m}$ into cm^2 .

Solution:

$$\text{Area} = 5 \times 5 = 25 \text{ m}^2$$

Since $1 \text{ m}^2 = 10,000 \text{ cm}^2$,

$$25 \text{ m}^2 = 25 \times 10,000 = 250,000 \text{ cm}^2$$



Properties of the Area of a Square

- i. The area of a square is always positive as it represents a physical space.
- ii. If the side length is doubled, the area becomes four times larger.
- iii. If the side length is halved, the area becomes one-fourth of the original area.
- iv. The area of a square is always greater than or equal to zero.
- v. Two different squares can have the same area if their sides are equal.
- vi. The area of a square is always measured in square units (e.g., cm^2 , m^2 , km^2).