

ONLINE MATHS CLASS - X – 34 (10 / 09 / 2021)

4 . SECOND DEGREE EQUATIONS - CLASS - 1

Activity 1

When each side of a square increased by 1 metre , the perimeter became 36 metres .

What is the length of a side of the original square ?

Answer

Perimeter of the new square = 36 m

Length of a side of the new square = $\frac{36}{4} = 9$ m

Length of a side of the original square = $9 - 1 = 8$ m

Activity 2

When each side of a square was reduced by 2 metres , the area became 25 square metres .

What was the length of the original square ?

Answer

Area of the new square = 25 sq. m

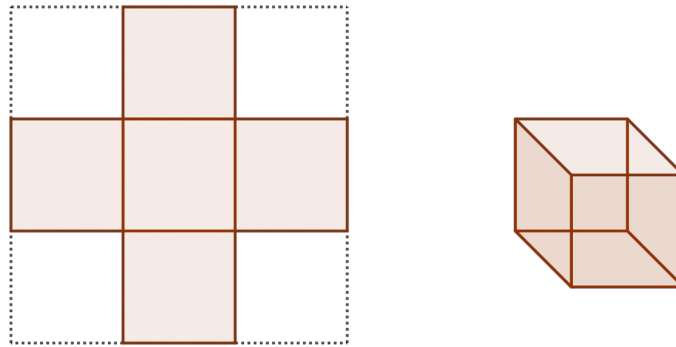
Length of a side of the new square = $\sqrt{25} = 5$ m

Length of a side of the original square = $5 + 2 = 7$ m

Activity 3

A box is to be made by cutting off small squares from each corner of a square of thick paper , and bending upwards . The height of the box is to be 10 centimetres and volume 1 litre . What should be the length of a side of the square sheet we start with ?

Answer



Volume of the box = 1 litre = 1000 cu. cm

$$\text{Base area} \times \text{height} = 1000$$

$$\text{Base area} \times 10 = 1000$$

$$\text{Base area} = \frac{1000}{10} = 100 \text{ sq.cm}$$

$$\text{Length of one side of base} = = \sqrt{100} = 10 \text{ cm}$$

$$\text{Length of a side of the square sheet} = 10 + 10 + 10 = 30 \text{ cm}$$

Activity 4

The square of a term in the arithmetic sequence 2, 5, 8, . . . is 2500 . What is its position ?

Answer

$$n^{\text{th}} \text{ term} = d n + f - d = 3 n + 2 - 3 = 3 n - 1$$

$$(3 n - 1)^2 = 2500$$

$$3 n - 1 = \sqrt{2500} = 50$$

$$3 n - 1 = 50$$

$$3 n = 50 + 1 = 51$$

$$n = \frac{51}{3} = 17$$