

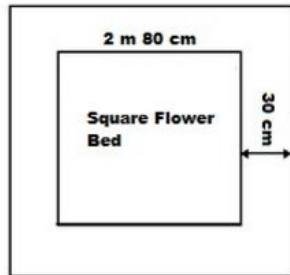


#### Mensuration I Ex 20.2 Q7

**Answer :**

We have,

Side of the flower bed = 2 m 80 cm = 2.80 m [ Since 100 cm = 1 m]



$$\therefore \text{Area of the square flower bed} = (\text{Side})^2 = (2.80 \text{ m})^2 = 7.84 \text{ m}^2$$

$$\begin{aligned} \text{Side of the flower bed with the digging strip} &= 2.80 \text{ m} + 30 \text{ cm} + 30 \text{ cm} \\ &= (2.80 + 0.3 + 0.3) \text{ m} = 3.4 \text{ m} \end{aligned}$$

$$\text{Area of the enlarged flower bed with the digging strip} = (\text{Side})^2 = (3.4)^2 = 11.56 \text{ m}^2$$

Thus,

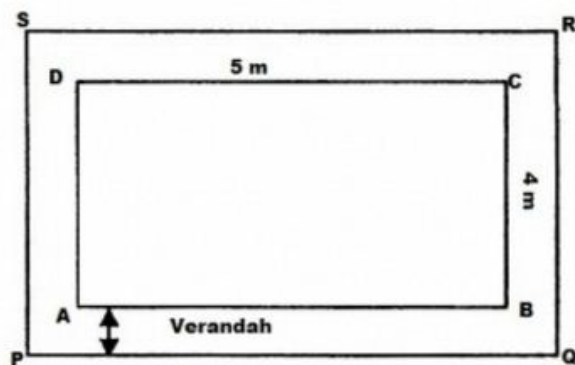
$$\begin{aligned} \text{Increase in the area of the flower bed} &= 11.56 \text{ m}^2 - 7.84 \text{ m}^2 \\ &= 3.72 \text{ m}^2 \end{aligned}$$

#### Mensuration I Ex 20.2 Q8

**Answer :**

Let the width of the verandah be  $x$  m.

Length of the room  $AB = 5$  m and  $BC = 4$  m



$$\therefore \text{Area of the room} = 5 \text{ m} \times 4 \text{ m} = 20 \text{ m}^2$$

$$\text{Length of the verandah } PQ = (5 + x + x) = (5 + 2x) \text{ m}$$

$$\text{Breadth of the verandah } QR = (4 + x + x) = (4 + 2x) \text{ m}$$

$$\text{Area of verandah } PQRS = (5 + 2x) \times (4 + 2x) = (4x^2 + 18x + 20) \text{ m}^2$$

$$\therefore \text{Area of verandah} = \text{Area of } PQRS - \text{Area of } ABCD$$

$$\Rightarrow 22 = 4x^2 + 18x + 20 - 20$$

$$\Rightarrow 22 = 4x^2 + 18x$$

$$\Rightarrow 11 = 2x^2 + 9x$$

$$\Rightarrow 2x^2 + 9x - 11 = 0$$

$$\Rightarrow 2x^2 + 11x - 2x - 11 = 0$$

$$\Rightarrow x(2x + 11) - 1(2x + 11) = 0$$

$$\Rightarrow (x - 1)(2x + 11) = 0$$

When  $x - 1 = 0$ ,  $x = 1$

When  $2x + 11 = 0$ ,  $x = -\frac{11}{2}$

The width cannot be a negative value.

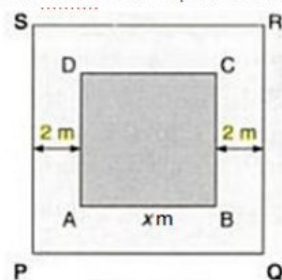
So, width of the verandah =  $x = 1$  m.

Mensuration I Ex 20.2 Q9

**Answer :**

We have,

Let  $ABCD$  be the square lawn and  $PQRS$  be the outer boundary of the square path.



Let side of the lawn  $AB$  be  $x$  m.

Area of the square lawn =  $x^2$

Length  $PQ = (x \text{ m} + 2 \text{ m} + 2 \text{ m}) = (x + 4) \text{ m}$

$\therefore$  Area of  $PQRS = (x + 4)^2 = (x^2 + 8x + 16) \text{ m}^2$

Now,

Area of the path = Area of  $PQRS$  - Area of the square lawn

$$\Rightarrow 136 = x^2 + 8x + 16 - x^2$$

$$\Rightarrow 136 = 8x + 16$$

$$\Rightarrow 136 - 16 = 8x$$

$$\Rightarrow 120 = 8x$$

$$\therefore x = 120 \div 8 = 15$$

$\therefore$  Side of the lawn = 15 m

Hence,

Area of the lawn =  $(\text{Side})^2 = (15 \text{ m})^2 = 225 \text{ m}^2$

\*\*\*\*\* END \*\*\*\*\*