Mensuration I Ex 20.2 Q7
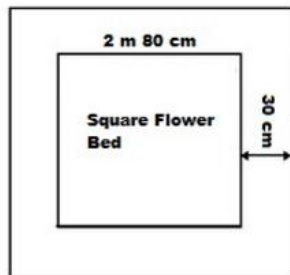
Answer :

We have,

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

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

Side of the flower bed with the digging strip = 2.80 m + 30 cm + 30 cm

= (2.80 + 0.3 + 0.3) m = 3.4 m

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

Thus,

Increase in the area of the flower bed = 11.56 m^2 − 7.84 m^2

= 3.72 m^2

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
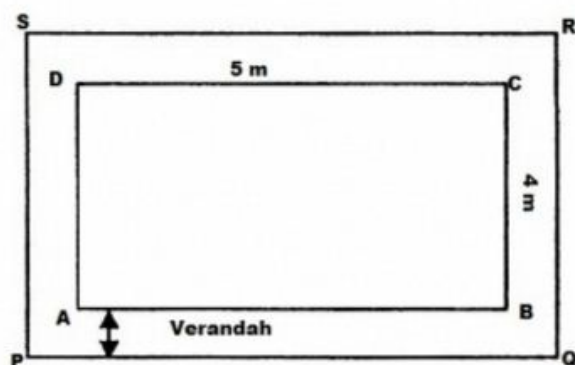
$\therefore$ Area of the room = 5 m x 4 m = 20 m^2

Length of the verandah PQ = $(5 + x + x)$ = $(5 + 2x)$ m

Breadth of the verandah QR = $(4 + x + x)$ = $(4 + 2x)$ m

Area of verandah $PQRS$ = $(5 + 2x)$ x $(4 + 2x)$ = $(4x^2 + 18x + 20)$ m^2

$\therefore$ Area of verandah = Area of $PQRS$ − 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 $x - 1 = 0$, $x = 1$

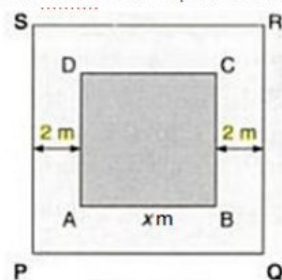When $2x + 11 = 0$, $x = -\dfrac{11}{2}$

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 $PQ = (x\ m + 2\ m + 2\ m) = (x + 4)$ m

∴ Area of $PQRS = (x + 4)^2 = (x^2 + 8x + 16)$ m^2

Now,

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

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

$\Rightarrow 136 = 8x + 16$

$\Rightarrow 136 - 16 = 8x$

$\Rightarrow 120 = 8x$

∴ $x = 120 \div 8 = 15$

∴ Side of the lawn = 15 m

Hence,

Area of the lawn = (Side)^2 = (15 m)^2 = 225 m^2

********** END *********