



Quadratic Equations Ex 8.11 Q1

Answer :

Let the breadth of the rectangle be = x metres . Then

Perimeter = 82 metres

$$2(\text{length} + \text{breadth}) = 82$$

$$(\text{length} + x) = 41$$

$$\text{length} = 41 - x$$

And area of the rectangle

$$\text{length} \times \text{breadth} = 400$$

$$(41 - x)x = 400$$

$$41x - x^2 = 400$$

$$x^2 - 41x + 400 = 0$$

$$x^2 - 25x - 16x + 400 = 0$$

$$x(x - 25) - 16(x - 25) = 0$$

$$(x - 25)(x - 16) = 0$$

$$(x - 25) = 0$$

$$x = 25$$

or

$$(x - 16) = 0$$

$$x = 16$$

Since perimeter is 82 meter. So breadth can't be 25 meter.

Hence, breadth 16 metres

Quadratic Equations Ex 8.11 Q2

Answer :

Let the breadth of the rectangular hall be = x metres and the length = $(x + 5)$ metres Then

And area of the rectangle

$$\text{length} \times \text{breadth} = 84$$

$$(x + 5)x = 84$$

$$x^2 + 5x - 84 = 0$$

$$x^2 - 7x + 12x - 84 = 0$$

$$x(x - 7) + 12(x - 7) = 0$$

$$(x - 7)(x + 12) = 0$$

$$(x - 7) = 0$$

$$x = 7$$

or

$$(x + 12) = 0$$

$$x = -12$$

Sides of the rectangular hall never are negative.

Therefore, length

$$= (x + 5)$$

$$= 7 + 5$$

$$= 12$$

Hence, breadth of the hall be 7metres and length be 12metre

Quadratic Equations Ex 8.11 Q3

Answer :

Given that sides of the squares are = x cm and = $(x + 4)$ cm .Then

According to question,

Sum of the areas of square = 656 cm^2

So,

$$x^2 + (x + 4)^2 = 656$$

$$x^2 + x^2 + 8x + 16 = 656$$

$$2x^2 + 8x + 16 - 656 = 0$$

$$2x^2 + 8x - 640 = 0$$

$$2(x^2 + 4x - 320) = 0$$

$$x^2 + 4x - 320 = 0$$

$$x^2 - 16x + 20x - 320 = 0$$

$$x(x - 16) + 20(x - 16) = 0$$

$$(x - 16)(x + 20) = 0$$

$$(x - 16) = 0$$

$$x = 16$$

or

$$(x + 20) = 0$$

$$x = -20$$

Sides of the square never are negative.

Therefore the side of the other square is

$$= (x + 4)$$

$$= 16 + 4$$

$$= 20$$

Hence, sides of the square be 16cm and 20cm respectively.

***** END *****