Quadratic Equations Ex 8.11 Q4

Answer :

Let the base of the right triangle be $= x$ metres and the altitude $= (x+7)$ metres Then

According to question,

Areas of the right triangle $= 165\,\text{m}^2$

And as we know that the area of the right triangle $= \frac{1}{2} \times \text{base} \times \text{height}$

$$\frac{1}{2} \times x \times (x+7) = 165$$

$$x^2 + 7x = 330$$

$$x^2 + 7x - 330 = 0$$

$$x^2 - 15x + 22x - 330 = 0$$

$$x(x-15) + 22(x-15) = 0$$

$$(x-15)(x+22) = 0$$

$$(x-15) = 0$$

$$x = 15$$

or

$$(x+22) = 0$$

$$x = -22$$

Since negative value is not possible. So x =15 m

Therefore the altitude is

$$= (x+7)$$

$$= 15 + 7$$

$$= 22$$

Hence, base of the right triangle be $\boxed{15\,\text{m}}$ and altitude be $\boxed{22\,\text{m}}$

Quadratic Equations Ex 8.11 Q5

Answer :

Let the breadth of the rectangular mango grove be x meter and the length $= 2x$ metres . Then

Area of the rectangle

$$\text{length} \times \text{breadth} = 800$$

$$x \times 2x = 800$$

$$2x^2 = 800$$

$$x^2 = 400$$

$$x = \sqrt{400}$$

$$= \pm 20$$

Sides of the rectangular hall never be negative

Therefore, length

$$= 2x$$

$$= 2 \times 20$$

$$= 40$$

$\boxed{\text{Yes}}$, it is possible.

Hence, breadth of the hall be $\boxed{20\,\text{metres}}$ and length be $\boxed{40\,\text{metre}}$

Quadratic Equations Ex 8.11 Q6

Answer :

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

Perimeter $= 80$ metres

$$2(\text{length}+\text{breadth}) = 80$$

$$(\text{length}+x) = 40$$

$$\text{length}=40-x$$

And area of the rectangle

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

$$(40-x)x = 400$$

$$40x - x^2 = 400$$

$$x^2 - 40x + 400 = 0$$

$$x^2 - 20x - 20x + 400 = 0$$

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

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

$$(x-20)^2 = 0$$

$$(x-20) = 0$$

$$x = 20$$

$\boxed{\text{Yes}}$, it is possible.

Hence, breadth of the rectangular park be $\boxed{20\text{metres}}$ and length be $\boxed{20\,\text{metres}}$

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