



Quadratic Equations Ex 8.7 Q1

Answer :

Let two consecutive numbers be x and $(x+1)$

Then according to question

$$x^2 + (x+1)^2 = 85$$

$$x^2 + x^2 + 2x + 1 = 85$$

$$2x^2 + 2x - 85 + 1 = 0$$

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

$$x^2 + x - 42 = 0$$

$$x^2 + 7x - 6x - 42 = 0$$

$$x(x+7) - 6(x+7) = 0$$

$$(x+7)(x-6) = 0$$

$$(x+7) = 0$$

$$x = -7$$

Or

$$(x-6) = 0$$

$$x = 6$$

Since, x being a number,

Therefore,

When $x = -7$ then

$$x+1 = -7+1$$

$$= -6$$

And when $x = 6$ then

$$x+1 = 6+1$$

$$= 7$$

Thus, two consecutive number be either $6, 7$ or $-6, -7$

Quadratic Equations Ex 8.7 Q2

Answer :

Let first numbers be x and other $(29 - x)$

Then according to question

$$x^2 + (29 - x)^2 = 425$$

$$x^2 + x^2 - 58x + 841 = 425$$

$$2x^2 - 58x + 841 = 425$$

$$2x^2 - 58x + 841 - 425 = 0$$

$$2x^2 - 58x + 416 = 0$$

$$x^2 - 29x + 208 = 0$$

$$x^2 - 16x - 13x + 208 = 0$$

$$x(x - 16) - 13(x - 16) = 0$$

$$(x - 16)(x + 13) = 0$$

$$(x - 16) = 0$$

$$x = 16$$

Or

$$(x + 13) = 0$$

$$x = -13$$

Since, 29 being a positive number, so x cannot be negative.

Therefore,

When $x = 16$ then

$$29 - x = 29 - 16$$

$$= 13$$

Thus, two consecutive number be 13,16

Answer :

Given that the sides of two square be x cm and $(x + 4)$ cm

Then according to question

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

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

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

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

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

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

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

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

$$(x + 20) = 0$$

$$x = -20$$

Or

$$(x - 16) = 0$$

$$x = 16$$

Since, sides of the squares being a positive, so x cannot be negative.

Therefore,

When $x = 16$ then

$$x + 4 = 16 + 4$$

$$= 20$$

Thus, sides of the squares be 16 cm, 20 cm

***** END *****