Quadratic Equations Ex 8.7 Q32

Answer :

Let three consecutive integer be $x, (x+1)$ and $(x+2)$

Then according to question

$$x^2+(x+1)(x+2)=46$$

$$x^2+x^2+3x+2=46$$

$$2x^2+3x+2-46=0$$

$$2x^2+3x-44=0$$

$$2x^2+3x-44=0$$

$$2x^2-8x+11x-44=0$$

$$2x(x-4)+11(x-4)=0$$

$$(x-4)(2x+11)=0$$

$$(x-4)=0$$

$$x=4$$

Or

$$(2x+11)=0$$

$$x=\frac{-11}{2}$$

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

Therefore,

When $x=4$ then other positive integer

$$x+1=4+1$$

$$=5$$

And

$$x+2=4+2$$

$$=6$$

Thus, three consecutive positive integer be $\boxed{4,5,6}$

Quadratic Equations Ex 8.7 Q33

Answer :

Let the smaller numbers be x

Then according to question,

The larger number be $= 2x-5$, then

$$(2x-5)^2 - x^2 = 88$$

$$4x^2 - 20x + 25 - x^2 - 88 = 0$$

$$3x^2 - 20x - 63 = 0$$

$$3x^2 - 20x - 63 = 0$$

$$3x^2 - 27x + 7x - 63 = 0$$

$$3x(x-9) + 7(x-9) = 0$$

$$(x-9)(3x+7) = 0$$

$$(x-9) = 0$$

$$x = 9$$

Or

$$(3x+7) = 0$$

$$x = \frac{-7}{3}$$

Since, x being a positive integer so, x cannot be negative,

Therefore,

When $x = 9$ then larger number be

$$2x-5 = 2\times 9 - 5$$

$$= 18 - 5$$

$$= 13$$

Thus, two consecutive number be either $\boxed{9,13}$

Quadratic Equations Ex 8.7 Q34

Answer :

Let the larger numbers be x

Then according to question,

Square of the smaller number be $=8x$ then

$$x^2-8x=180$$

$$x^2-8x-180=0$$

$$x^2-18x+10x-180=0$$

$$x(x-18)+10(x-18)=0$$

$$(x-18)(x+10)=0$$

$$(x-18)=0$$

$$x=18$$

Or

$$(x+10)=0$$

$$x=-10$$

Since, x being a positive integer so, x cannot be negative,

Therefore,

When $x=18$ then smaller number be

$$\sqrt{8x}=\sqrt{8\times 18}$$

$$=\sqrt{144}$$

$$=\pm 12$$

Thus, two consecutive number be $\boxed{18,12 or 18,-12}$

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