Quadratic Equations Ex 8.7 Q4

Answer :

Let first numbers be x and other $(48-x)$

Then according to question

$$x(48-x)=432$$

$$48x-x^2=432$$

$$x^2-48x+432=0$$

$$x^2-36x-12x+432=0$$

$$x(x-36)-12(x-36)=0$$

$$(x-36)(x-12)=0$$

$$(x-36)=0$$

$$x=36$$

Or

$$(x-12)=0$$

$$x=12$$

Thus, two number be $\boxed{36,12}$

Quadratic Equations Ex 8.7 Q5

Answer :

Let an integer be x.

Then according to question

$$x + x^2 = 90$$

$$x^2 + x - 90 = 0$$

$$x^2 + 10x - 9x - 90 = 0$$

$$x(x+10) - 9(x+10) = 0$$

$$(x+10)(x-9) = 0$$

$$(x+10) = 0$$

$$x = -10$$

Or

$$(x-9) = 0$$

$$x = 9$$

Thus, an integer be $\boxed{-10, 9}$

Quadratic Equations Ex 8.7 Q6

Answer :

Let the whole numbers be x.

Then according to question

$$(x-20)=69\times\frac{1}{x}$$

$$x(x-20)=69$$

$$x^2-20x-69=0$$

$$x^2-23x+3x-69=0$$

$$x(x-23)+3(x-23)=0$$

$$(x-23)(x+3)=0$$

$$(x-23)=0$$

$$x=23$$

Or

$$(x+3)=0$$

$$x=-3$$

Since, whole numbers being a positive, so x cannot be negative.

Thus, whole numbers be $\boxed{23}$

Quadratic Equations Ex 8.7 Q7

Answer :

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

Then according to question

$$x(x+1)=20$$

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

$$x^2+5x-4x-20=0$$

$$x(x+5)-4(x+5)=0$$

$$(x+5)(x-4)=0$$

$$(x+5)=0$$

$$x=-5$$

Or

$$(x-4)=0$$

$$x=4$$

Since, x being a natural number,

Therefore negative value is not possible

So when $x=4$ then

$$x+1=4+1$$

$$=5$$

Thus, two consecutive numbers are $\boxed{4,5}$

Quadratic Equations Ex 8.7 Q8

Answer :

Let two consecutive odd positive integer be $(2x-1)$ and other $(2x+1)$

Then according to question

$$(2x+1)^2+(2x-1)^2=394$$

$$4x^2+\cancel{4x}+1+4x^2\cancel{-4x}+1=394$$

$$8x^2+2=394$$

$$8x^2=394-2$$

$$x^2=\frac{392}{8}$$

$$x^2=49$$

$$x=\sqrt{49}$$

$$=\pm 7$$

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

Therefore,

When $x=7$ then odd positive

$$2x-1=2\times 7-1$$

$$=13$$

And

$$2x+1=2\times 7+1$$

$$=15$$

Thus, two consecutive odd positive integer be $\boxed{13,15}$

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