Quadratic Equations Ex 8.7 Q19

Answer :

Let one numbers be x then other $(16-x)$.

Then according to question

$$\frac{1}{x}+\frac{1}{(16-x)}=\frac{1}{3}$$

$$\frac{16-\cancel{x}+\cancel{x}}{x(16-x)}=\frac{1}{3}$$

$$\frac{16}{(16x-x^2)}=\frac{1}{3}$$

By cross multiplication

$$16x-x^2=48$$

$$x^2-16x+48=0$$

$$x^2-12x-4x-48=0$$

$$x(x-12)-4(x-12)=0$$

$$(x-12)(x-4)=0$$

$$(x-12)=0$$

$$x=12$$

Or

$$(x-4)=0$$

$$x=4$$

Since, x being a number,

Therefore,

When $x=12$ then

$$16-x=16-12$$

$$=4$$

Thus, two consecutive number be either $\boxed{4,12}$

Quadratic Equations Ex 8.7 Q20

Answer :

Let the required number be $3x$ and $(3x+3)$

Then according to question

$$(3x)(3x+3)=270$$

$$9x^2+9x-270=0$$

$$9\left(x^2+x-30\right)=0$$

$$x^2+x-30=0$$

$$x^2+x-30=0$$

$$x^2-5x+6x-30=0$$

$$x(x-5)+6(x-5)=0$$

$$(x-5)(x+6)=0$$

$$(x-5)=0$$

$$x=5$$

Quadratic Equations Ex 8.7 Q21

Answer :

Let a numbers be x and its reciprocal is $\frac{1}{x}$

Then according to question

$$x+\frac{1}{x}=\frac{17}{4}$$

$$\frac{x^2+1}{x}=\frac{17}{4}$$

By cross multiplication

$$4x^2+4=17x$$

$$4x^2-17x+4=0$$

$$4x^2-17x+4=0$$

$$4x^2-x-16x+4=0$$

$$x(4x-1)-4(4x-1)=0$$

$$(4x-1)(x-4)=0$$

$$(4x-1)=0$$

$$x=\frac{1}{4}$$

Or

$$(x-4)=0$$

$$x=4$$

Thus, two consecutive number be either $\boxed{4 \text{ or } \frac{1}{4}}$

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