



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 4,12

Quadratic Equations Ex 8.7 Q20

Answer :

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

Then according to question

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

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

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

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

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

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

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

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

$$(x-5)=0$$

$$x=5$$

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

4 or $\frac{1}{4}$

***** END *****