Quadratic Equations Ex 8.7 Q9

**Answer :**

Let first numbers be $x$ and other $(8-x)$

Then according to question

$$\left\{\frac{1}{x}+\frac{1}{(8-x)}\right\}\times 15=8$$

$$\left\{\frac{8-\cancel{x}+\cancel{x}}{x(8-x)}\right\}=\frac{8}{15}$$

$$\left\{\frac{1}{x(8-x)}\right\}=\frac{\cancel{8}}{15}\times\frac{1}{\cancel{8}}$$

$$x(8-x)=15$$

$$x^2-8x+15=0$$

$$x^2-5x-3x+15=0$$

$$x(x-5)-3(x-5)=0$$

$$(x-5)(x-3)=0$$

$$(x-5)=0$$

$$x=5$$

Or

$$(x-3)=0$$

$$x=3$$

Thus, two consecutive number be $\boxed{3,5}$

Quadratic Equations Ex 8.7 Q10

**Answer :**

Let first numbers be $x$

Then according to question

$$x+\sqrt{x}=\frac{6}{25}$$

Let $x=y^2$ then

$$y^2+y=\frac{6}{25}$$

$$25y^2+25y=6$$

$$25y^2+25y-6=0$$

$$25y^2+30y-5y-6=0$$

$$5y(5y+6)-1(5y+6)=0$$

$$(5y+6)(5y-1)=0$$

$$(5y+6)=0$$

$$y=\frac{-6}{5}$$

Or

$$(5y-1)=0$$

$$x=\frac{1}{5}$$

Since, being a positive number, so $y$ cannot be negative.

Therefore,

$$x=y^2$$

$$=\left(\frac{1}{5}\right)^2$$

$$=\left(\frac{1}{25}\right)$$

Thus, the required number be $\boxed{\left(\frac{1}{25}\right)}$

Quadratic Equations Ex 8.7 Q11

**Answer :**

Let first numbers be $x$

Then according to question

$$x+x^2=\frac{63}{4}$$

Let $x=y^2$ then

$$4\left(x+x^2\right)=63$$

$$4x^2+4x-63=0$$

$$4x^2+18x-14x-63=0$$

$$2x\left(2x+9\right)-7\left(2x+9\right)=0$$

$$\left(2x+9\right)\left(2x-7\right)=0$$

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

$$x=-\frac{9}{2}$$

Or

$$\left(2x-7\right)=0$$

$$x=\frac{7}{2}$$

Thus, the required number be $\boxed{\frac{7}{2},\frac{-9}{2}}$

Quadratic Equations Ex 8.7 Q12

**Answer :**

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

Then according to question

$$x^2+(x+1)(x+2)=154$$

$$x^2+x^2+3x+2=154$$

$$2x^2+3x+2-154=0$$

$$2x^2+3x-152=0$$

$$2x^2+3x-152=0$$

$$2x^2-16x+19x-152=0$$

$$2x(x-8)+19(x-8)=0$$

$$(x-8)(2x+19)=0$$

$$(x-8)=0$$

$$x=8$$

Or

$$(2x+19)=0$$

$$x=\frac{-19}{2}$$

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

Therefore,

When $x=8$ then other positive integer

$$x+1=8+1$$

$$=9$$

And

$$x+2=8+2$$

$$=10$$

Thus, three consecutive positive integer be $\boxed{8,9,10}$

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