Quadratic Equations Ex 8.1 Q4

Answer :

We have been given that,

$ax^2+7x+b=0, x=\frac{2}{3}, x=-3$

We have to find *a* and *b*

Now, if $x=\frac{2}{3}$ is a root of the equation, then it should satisfy the equation completely. Therefore we substitute $x=\frac{2}{3}$ in the above equation. We get,

$$a\left(\frac{2}{3}\right)^2+7\left(\frac{2}{3}\right)+b=0$$

$$\frac{4a+42+9b}{9}=0$$

$$a=\frac{-9b-42}{4} \ldots\ldots (1)$$

Also, if $x=-3$ is a root of the equation, then it should satisfy the equation completely. Therefore we substitute $x=-3$ in the above equation. We get,

$$a(-3)^2+7(-3)+b=0$$

$$9a-21+b=0 \ldots\ldots (2)$$

Now, we multiply equation (2) by 9 and then subtract equation (1) from it. So we have,

$$81a+9b-189-4a-9b-42=0$$

$$77a-231=0$$

$$a=\frac{231}{77}$$

$$a=3$$

Now, put this value of '*a*' in equation (2) in order to get the value of '*b*'. So,

$$9(3)+b-21=0$$

$$b=-6$$

Therefore, we have $\boxed{a=3}$ and $\boxed{b=-6}$.

Quadratic Equations Ex 8.1 Q5

Answer :

We have been given that,

$\sqrt{x^2-4x+3}+\sqrt{x^2-9}=\sqrt{4x^2-14x+16}$

We have to check whether *x=3* is the solution

Now, if $x=3$ is a root of the above quadratic equation, then it should satisfy the whole. So substituting $x=3$ in the above equation, we have,

Left hand side

$$=\sqrt{(3)^2-4(3)+3}+\sqrt{(3)^2-9}$$

$$=\sqrt{0}+\sqrt{0}$$

$$=0$$

Right hand side

$$=\sqrt{4(3^2)-14(3)+16}$$

$$=\sqrt{36-42+16}$$

$$=\sqrt{10}$$

Now since, we can see from above that left hand side and right hand side are not equal. Therefore $x=3$ is not a solution of the given quadratic equation.

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