



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,

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

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

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

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,

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

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

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.

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