

Q:-) Find the zeroes of

$p(x) = 4\sqrt{3}x^2 - 5x - 2\sqrt{3}$ and verify the relationship between the

zeroes and the coefficients.

$$\text{put } p(x) = 0$$

$$\Rightarrow 4\sqrt{3}x^2 - 5x - 2\sqrt{3} = 0$$

$$\Rightarrow 4\sqrt{3}x^2 - 8x + 3x - 2\sqrt{3} = 0$$

	S	P
	-5	-24

$$\Rightarrow 4x(\sqrt{3}x - 2) + \sqrt{3}(\sqrt{3}x - 2) = 0$$

	^
	-8, 3

$$\Rightarrow (4x + \sqrt{3})(\sqrt{3}x - 2) = 0$$

$x = -\frac{\sqrt{3}}{4}, \frac{2}{\sqrt{3}}$ are the zeroes of $p(x)$

Verification:- let $\alpha = -\frac{\sqrt{3}}{4}$ and $\beta = \frac{2}{\sqrt{3}}$

$$a = 4\sqrt{3}, b = -5, c = -2\sqrt{3}$$

$$\begin{aligned} \text{Sum of zeroes} &= \alpha + \beta = -\frac{\sqrt{3}}{4} + \frac{2}{\sqrt{3}} = \frac{-3+8}{4\sqrt{3}} = \frac{5}{4\sqrt{3}} \\ &= -\left(\frac{-5}{4\sqrt{3}}\right) = \frac{-b}{a} = \frac{\text{coefficient of } x}{\text{coefficient of } x^2} \end{aligned}$$

$$\begin{aligned} \text{Product of zeroes} &= \alpha\beta = -\frac{\sqrt{3}}{4} \times \frac{2}{\sqrt{3}} = \frac{-2\sqrt{3}}{4\sqrt{3}} = \frac{c}{a} \\ &= \frac{\text{Constant term}}{\text{coefficient of } x^2} \end{aligned}$$

Hence Verified