

Mathematics

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(Chapter – 2) (Polynomials)(Exemplar Problems)

(Class – X)

Exercise 2.3

Find the zeroes of the following polynomials by factorization method and verify the relations between the zeroes and the coefficients of the polynomials.

Question 3:

$$5t^2 + 12t + 7$$

Answer 3:

$$\text{Let } f(t) = 5t^2 + 12t + 7$$

$$= 4t^2 + 7t + 5t + 7$$

$$= t(5t + 7) + 1(5t + 7)$$

$$= (5t + 7)(t + 1)$$

So, the value of $5t^2 + 12t + 7$ is zero when $5t + 7 = 0$ or $t + 1 = 0$.

i.e., when $t = -\frac{7}{5}$ or $t = -1$.

So, the zeroes of $5t^2 + 12t + 7$ are $-\frac{7}{5}$ and -1 .

$$\therefore \text{Sum of zeroes} = -\frac{7}{5} - 1 = -\frac{12}{5}$$

$$= -\left(\frac{\text{coefficinet of } t}{\text{coefficinet of } t^2}\right)$$

$$\text{and product of zeroes} = \left(-\frac{7}{5}\right)(-1) = \frac{7}{5}$$

$$= \left(\frac{\text{Constant term}}{\text{coefficinet of } t^2}\right)$$

Hence, the relations between the zeroes and the coefficients of the polynomial is verified.

