

Mathematics

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

(Class – X)

Exercise 2.1

Question 7:

The zeroes of the quadratic polynomial $x^2 + 99x + 127$ are

- (A) both positive (B) both negative
(C) one positive and one negative (D) both equal

Answer 7:

(B) both negative

Solution:

Let the given quadratic polynomial be $p(x) = x^2 + 99x + 127$.

On comparing $p(x)$ with $ax^2 + bx + c$, we get

$$a = 1, b = 99 \text{ and } c = 127$$

Let α and β be the zeroes of the polynomial $p(x)$.

We know that,

$$\therefore \text{sum of zeroes } \alpha + \beta = -\frac{b}{a}$$

$$\Rightarrow \alpha + \beta = -\frac{99}{1} = -99$$

$$\text{and product of zeroes } \alpha\beta = \frac{c}{a}$$

$$\Rightarrow \alpha\beta = \frac{127}{1} = 127$$

If, the product of two numbers is positive, then either both are negative or both are positive. But the sum of these numbers is negative, so numbers must be negative.

Hence, both zeroes of the given quadratic polynomial $p(x)$ are negative.

