

Mathematics

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

(Class – X)

Exercise 2.1

Question 3:

If the zeroes of the quadratic polynomial $x^2 + (a + 1)x + b$ are 2 and -3, then

(A) $a = -7, b = -1$

(B) $a = 5, b = -1$

(C) $a = 2, b = -6$

(D) $a = 0, b = -6$

Answer 3:

(D) $a = 0, b = -6$

Solution:

Let $p(x) = x^2 + (a + 1)x + b$

Given that, 2 is the zero of the quadratic polynomial $p(x)$

$$\therefore p(2) = 0$$

$$\Rightarrow 2^2 + (a + 1)(2) + b = 0$$

$$\Rightarrow 4 + 2a + 2 + b = 0$$

$$\Rightarrow 2a + b = -6 \quad \dots (i)$$

Given that, -3 is the zero of the quadratic polynomial $p(x)$

$$\therefore p(-3) = 0$$

$$\Rightarrow (-3)^2 + (a + 1)(-3) + b = 0$$

$$\Rightarrow 9 - 3a - 3 + b = 0$$

$$\Rightarrow 3a - b = 6 \quad \dots (ii)$$

Solving equations (i) and (ii), we get

$$5a = 0 \Rightarrow a = 0$$

Putting the value of a in equation (i), we get

$$2 \times 0 + b = -6 \Rightarrow b = -6$$

So, the required values are $a = 0$ and $b = -6$.

