

Mathematics

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

(Class – X)

Exercise 2.1

Question 2:

A quadratic polynomial, whose zeroes are -3 and 4 , is

(A) $x^2 - x + 12$

(B) $x^2 + x + 12$

(C) $\frac{x^2}{2} - \frac{x}{2} - 6$

(D) $2x^2 + 2x - 24$

Answer 2:

(C) $\frac{x^2}{2} - \frac{x}{2} - 6$

Solution:

Let $ax^2 + bx + c$ be a required polynomial whose zeroes are -3 and 4 .

Then, sum of zeroes

$$= -3 + 4 = 1$$

$$\Rightarrow -\frac{b}{a} = \frac{1}{1} \Rightarrow -\frac{b}{a} = -\frac{(-1)}{1}$$



$$[\because \text{sum of zeroes} = -\frac{b}{a}]$$

and product of zeroes

$$= -3 \times 4 = -12$$

$$\Rightarrow \frac{c}{a} = -\frac{12}{1}$$

$$[\because \text{product of zeroes} = \frac{c}{a}]$$

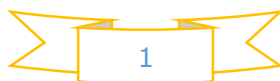
Solving these equations, we get

$$a = 1, b = -1 \text{ and } c = -12$$

\therefore The required polynomial

$$= ax^2 + bx + c$$

$$= 1.x^2 - 1.x - 12$$



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$$= x^2 - x - 12$$

$$= \frac{x^2}{2} - \frac{x}{2} - 6$$

