

CLASS 10

MATHS

NCERT SOLUTIONS

NCERT Solutions for Class 10 Maths Chapter 2: Polynomials – Free PDF Download

Chapter 2 — Polynomials is a short, high-yield chapter in the current 2026-27 CBSE Class 10 Maths syllabus. Below are complete, worked solutions for the standard Exercise 2.1 problems on finding zeroes of quadratic polynomials and verifying the relationship between zeroes and coefficients.

Contents

NCERT Solutions for Class 10 Maths Chapter 2: Polynomials (Exercise 2.1)

Why This Chapter Matters

CBSE Exam Weightage

How to Use These Solutions

Class 10 Mathematics Chapter 2 – Notes and Extra Questions

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NCERT Solutions for Class 10 Maths Chapter 2: Polynomials (Exercise 2.1)

Q1. Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients.

(i) $x^2 - 2x - 8$

Factorising: $x^2 - 4x + 2x - 8 = x(x-4) + 2(x-4) = (x-4)(x+2)$. Zeroes: $x = 4, x = -2$.

Sum of zeroes = $4 + (-2) = 2 = -(-2)/1 = -(\text{coefficient of } x)/(\text{coefficient of } x^2)$ ✓

Product of zeroes = $4 \times (-2) = -8 = (-8)/1 = (\text{constant term})/(\text{coefficient of } x^2)$ ✓

(ii) $4s^2 - 4s + 1$

$= (2s - 1)^2$. Zeroes: $s = 1/2, 1/2$.

Sum = $1/2 + 1/2 = 1 = -(-4)/4$ ✓

Product = $1/2 \times 1/2 = 1/4 = 1/4$ ✓

(iii) $6x^2 - 3 - 7x$ (rewrite as $6x^2 - 7x - 3$)

$= 6x^2 - 9x + 2x - 3 = 3x(2x-3) + 1(2x-3) = (3x+1)(2x-3)$. Zeroes: $x = -1/3, 3/2$.

Sum = $-1/3 + 3/2 = 7/6 = -(-7)/6$ ✓

Product = $(-1/3)(3/2) = -1/2 = -3/6$ ✓

(iv) $4u^2 + 8u$

$= 4u(u + 2)$. Zeroes: $u = 0, -2$.

Sum = $0 + (-2) = -2 = -8/4$ ✓

Product = $0 \times (-2) = 0 = 0/4$ ✓

(v) $t^2 - 15$

Zeroes: $t = \sqrt{15}, -\sqrt{15}$.

Sum = $0 = -0/1$ ✓

Product = $-15 = -15/1$ ✓

(vi) $3x^2 - x - 4$

$= 3x^2 - 4x + 3x - 4 = x(3x-4) + 1(3x-4) = (3x-4)(x+1)$. Zeroes: $x = 4/3, -1$.

Sum = $4/3 + (-1) = 1/3 = -(-1)/3$ ✓

Product = $(4/3)(-1) = -4/3$ ✓

Q2. Find a quadratic polynomial for each pair of sum and product of zeroes given below. (Using the general form $x^2 - (\text{sum})x + (\text{product})$, scaled to clear fractions where useful.)

(i) $1/4, -1 \rightarrow x^2 - (1/4)x - 1$, or equivalently $4x^2 - x - 4$.

(ii) $\sqrt{2}, 1/3 \rightarrow x^2 - \sqrt{2}x + 1/3$, or equivalently $3x^2 - 3\sqrt{2}x + 1$.

(iii) $0, \sqrt{5} \rightarrow x^2 + \sqrt{5}$.

(iv) $1, 1 \rightarrow x^2 - x + 1$.

(v) $-1/4, 1/4 \rightarrow x^2 + (1/4)x + 1/4$, or equivalently $4x^2 + x + 1$.

(vi) $4, 1 \rightarrow x^2 - 4x + 1$.

Why This Chapter Matters

Polynomials builds the algebraic foundation for Chapter 4 (Quadratic Equations) and reappears in Class 11 algebra. In board exams it typically contributes 2–4 marks via a direct zero-finding or coefficient-relationship question, and understanding the sum/product relationship (rather than memorising it) makes several later chapters, including Arithmetic Progressions, noticeably easier.

CBSE Exam Weightage

This chapter falls under **Unit II: Algebra** in the CBSE Class 10 Maths board exam syllabus. This unit typically carries around **20 marks (25%)** of the 80-mark theory paper, based on CBSE's published unit-wise weightage (Question Paper Design). CBSE sets weightage at the unit level rather than chapter-by-chapter, so the exact share from this specific chapter can vary a little between years and sample papers.

How to Use These Solutions

Work through each polynomial yourself first, then compare your factorisation steps with the ones above — exam markers award partial credit for correct method even if a small arithmetic slip changes the final answer. You can download the full chapter from our [Class 10 Maths NCERT book page](#), or see every solved chapter so far on our [Chapter 1: Real Numbers solutions](#).

Class 10 Mathematics Chapter 2 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Class 10 Mathematics Chapter 2 Extra Questions](#) and [Class 10 Mathematics Chapter 2 Revision Notes](#) for quick revision and extra practice.