

CLASS 9

MATHEMATICS

NCERT SOLUTIONS

NCERT Solutions for Class 9 Mathematics Chapter 4: Exploring Algebraic Identities – Free PDF Download

Chapter 4 of Class 9 Maths Ganita Manjari Part 1 is Exploring Algebraic Identities. It covers standard algebraic identities that hold true for all values of the variables involved, and shows how they speed up expansion, factorisation, and calculation. These Class 9 Mathematics Chapter 4 solutions are also useful as ...

Contents

What Is an Algebraic Identity?

Standard Identities

Using Identities for Quick Expansion

Using Identities for Factorisation

Using Identities for Mental Calculation

Class 9 Mathematics Chapter 4 – Notes and Extra Questions

Chapter 4 of Class 9 Maths *Ganita Manjari Part 1* is Exploring Algebraic Identities. It covers standard algebraic identities that hold true for all values of the variables involved, and shows how they speed up expansion, factorisation, and calculation. These Class 9 Mathematics Chapter 4 solutions are also useful as quick revision notes before exams.

What Is an Algebraic Identity?

An **algebraic identity** is an equation that is true for all values of the variables involved (unlike an equation that is only true for specific values).

Standard Identities

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

$$a^2 - b^2 = (a + b)(a - b)$$

$$(x + a)(x + b) = x^2 + (a + b)x + ab$$

$$(a + b)^3 = a^3 + b^3 + 3ab(a + b)$$

$$(a - b)^3 = a^3 - b^3 - 3ab(a - b)$$

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

Using Identities for Quick Expansion

Identities let us expand expressions like $(2x + 3y)^2$ quickly by substituting $a = 2x$, $b = 3y$ directly into the standard form, instead of multiplying term by term.

Using Identities for Factorisation

Identities work both ways: they can also be used to factorise expressions. For example, $x^2 - 9 = x^2 - 3^2 = (x + 3)(x - 3)$, using the difference of squares identity in reverse.

Using Identities for Mental Calculation

Identities can simplify arithmetic too — e.g. $102 \times 98 = (100 + 2)(100 - 2) = 100^2 - 2^2 = 10000 - 4 = 9996$, avoiding direct multiplication.

Class 9 Mathematics Chapter 4 – Notes and Extra Questions

Along with these NCERT Solutions, students can also use the [Class 9 Mathematics Chapter 4 Extra Questions](#) and [Class 9 Mathematics Chapter 4 Revision Notes](#) for quick revision and extra practice.

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#)

Quick revision: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#)

© NCERTBooks.org — your one-stop source for Class 1 to 12 NCERT Books, Solutions, Extra Questions, Revision Notes, Formulas Handbooks and more. Visit ncertbooks.org for the latest chapters as they are published.