

MATHS SYLLABUS

Class – 10

10th Class Maths Syllabus – An Overview

CBSE syllabus for Class 10 Maths helps students to start studying from the NCERT textbooks. So, to help students in their studies, we have here provided the CBSE syllabus for Class 10 Maths for the academic year 2023-2024. The CBSE Syllabus will help students in planning their studies in advance. So, in case they have any doubts while studying, they can ask their teacher the next day. Also, to help students, we have provided the NCERT solutions for Class 10 Maths. This will help them in scoring marks in the exam.

Chapter – 1 (Real Numbers)

- Integers
- Rational numbers on the number line.
- Rational numbers in the form of recurring or terminating decimals
- Examples of non-recurring or non-terminating decimals
- The existence of non-rational (irrational) numbers such as $\sqrt{2}, \sqrt{3}$ and their representation on the number line
- The existence of non-rational (irrational) numbers such as 2 and 3 and their representation on the number line represents a unique real number.
- Existence of \sqrt{x} for a given positive real number x
- Definition of nth root of a real number
- Recall of laws of exponents with integral powers
- Rational exponents with positive real bases (to be done by particular cases, allowing the learner to arrive at the general laws)

- Real numbers of the types $1/\sqrt{x+y}$ and $1/\sqrt{x+y}\sqrt{y}$ (and their combinations), where x and y are natural numbers and a and b are integers, rationalised (with precise meaning).

Chapter – 2 (Polynomials)

- (i) Algebraic Identities.
- (ii) Factorisation of Polynomials.
- (iii) Polynomials in One Variable.
- (iv) Remainder Theorem.
- (v) Zeroes of a Polynomial.

Chapter – 3 (Linear Equations in Two Variables)

- Recall of linear equations in one variable.
- Introduction to the linear equation in two variables.
- Study of linear equations of the form $ax + by + c = 0$.
- Linear equation in two variables with infinitely many solutions and justify using graphs.
- Graph of linear equations in two variables - real-life problems with both algebraic and graphical solutions.

Chapter – 4 (Quadratic Equations)

Quadratic equation : A quadratic equation in the variable x is of the form $ax^2 + bx + c = 0$, where a, b, c are real numbers and $a \neq 0$.

- Roots of a quadratic equation : A real number α is said to be a root of the quadratic equation $ax^2 + bx + c = 0$, if $a\alpha^2 + b\alpha + c = 0$.
- The roots of the quadratic equation $ax^2 + bx + c = 0$ are the same as the zeroes of the quadratic polynomial $ax^2 + bx + c$.
- Finding the roots of a quadratic equation by the method of factorisation : If we can factorise the quadratic polynomial $ax^2 + bx + c$, then the roots of the quadratic equation $ax^2 + bx + c = 0$ can be found by equating to zero the linear factors of $ax^2 + bx + c$.
- Finding the roots of a quadratic equation by the method of completing the square : By adding and subtracting a suitable constant, we club the x^2 and x terms in the quadratic equation so that they become a complete square, and solve for x .
- Quadratic Formula : If $b^2 - 4ac \geq 0$, then the real roots of the quadratic equation $ax^2 + bx + c = 0$ are given by $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$.
- The expression $b^2 - 4ac$ is called the discriminant of the quadratic equation.
- Existence of roots of a quadratic equation: A quadratic equation $ax^2 + bx + c = 0$ has
 - (i) two distinct real roots if $b^2 - 4ac > 0$
 - (ii) two equal real roots if $b^2 - 4ac = 0$
 - (iii) no real roots if $b^2 - 4ac < 0$.

Chapter – 5 (Arithmetic Progressions)

- Introduction.
- General Terms and Definition of an Arithmetic Progression.
- Introduction to Arithmetic Progression.
- Sum of First “n” Terms of an Arithmetic Progression.

Chapter – 6 (Triangles)

- Areas of Similar Triangles .
- Basic Proportionality Theorem.
- Pythagoras Theorem.

Chapter - 7 (Trigonometry)

- **Introduction to Trigonometry**
 - Trigonometric ratios of an acute angle of a right-angled triangle.
 - Values of the trigonometric ratios of 30° , 45° and 60° .
 - Relationships between the ratios.
- **Trigonometric Identities**
 - Basic identity $\sin^2x + \cos^2x = 1$ along with its proof and applications
 - Other simple identities.
- **Heights and Distances (Applications of Trigonometry)**
 - The angle of elevation, angle of depression
 - Simple problems on heights and distances involving the angles 30° , 45° , 60° that involve maximum two right triangles

Chapter – 8 (Coordinate Geometry)

- (i) Area of a Triangle
- (ii) Distance Formula
- (iii) Section Formula

Chapter – 9 (Statistics)

- (i) Area of a Triangle
- (ii) Distance Formula
- (iii) Section Formula

Chapter – 10 (Mensuration)

- **Areas Related to Circles**
 - areas of a circle, sectors and segments
 - Applications on these areas that involve the central angles 60° and 90° , triangles, simple quadrilaterals, etc.
- Surface areas and volumes of cubes, cuboids, spheres (including hemispheres) and right circular cylinders / right circular cones.

Chapter – 11 (Probability)

- (i) Mean of Grouped Data.
- (ii) Mode and Median of Grouped Data.
- (iii) Relation Between Central Tendencies.