CBSE Class 12 Maths Updated Syllabus

Maths Syllabus Class 12 CBSE Course Structure

The table below shows the course structure and the distribution of marks in the updated CBSE Class 12 Maths Syllabus.

Sl. No	Unit Name	Periods	Marks
I	Relations and Functions	30	08
II	Algebra	50	10
III	Calculus	80	35
IV	Vectors and Three-Dimensional Geometry	30	14
V	Linear Programming	20	05
VI	Probability	30	08
TOTAL		240	100
	Internal Assessment	-	20

Quick Overview of CBSE Maths Class 12 Syllabus

The CBSE Maths Class 12 Syllabus provides interesting chapters and topics. It starts with the basics of mathematics and later into complex concepts. Check out the table below for a breakdown of what you'll be learning in each unit.

Units
Unit-I: Relations and Functions
1. Relations and Functions Types of relations: reflexive, symmetric, transitive, and equivalence relations. One-to-one and onto functions.
2. Inverse Trigonometric Functions Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions
Unit-II: Algebra
1. Matrices Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew-symmetric matrices. Operations on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication, and scalar multiplication. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restricted to square matrices of order 2). Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).
2. Determinants Determinants of a square matrix (up to 3 x 3 matrices), minors, co-factors, and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency, and number of solutions of a system of linear equations by examples, solving a system of linear equations in two or three variables (having unique solution) using the inverse of a matrix.
Unit-III: Calculus
1. Continuity and Differentiability Continuity and differentiability, chain rule, a derivative of inverse trigonometric functions, *like* sin-1x cos-1x tan-1x, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic

differentiation is a derivative of functions expressed in parametric forms. Second-order derivatives.
2. Applications of Derivatives Applications of derivatives: rate of change of quantities, increasing/decreasing functions, maxima, and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).
3. Integrals Integration is the inverse process of differentiation. Integration of a variety of functions by substitution, partial fractions, and parts, Evaluation of simple integrals of the following types and problems based on them. Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.
4. Applications of the Integrals Applications in finding the area under simple curves, especially lines, circles/ parabolas/ellipses (in standard form only)
5. Differential Equations Definition, order and degree, general and particular solutions of a differential equation. Solution of differential equations by method of separation of variables, solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type:
Unit-IV: Vectors and Three-Dimensional Geometry
1. Vectors Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel, and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors.
2. Three-dimensional Geometry Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, skew lines, shortest distance between two lines. The angle between two lines.

Unit-V: Linear Programming
1. Linear Programming Introduction, related terminology such as constraints, objective function, optimization, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).
Unit-VI: Probability
1. Probability Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution, mean of random variable

CBSE Maths Class 12 Syllabus - (041) Question Paper Design

The Central Board of Secondary Education (CBSE) has released the question paper design for the upcoming academic year Maths exam for Class 12 (code 041). This breakdown outlines the format and types of questions you can expect for the test.

S. No.	Typology of Questions	Total Marks	% Weightage
1	**Remembering & Understanding**	44	55
	- Exhibit memory of learned material. Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.		
	- Demonstrate understanding of concepts. Demonstrate understanding of facts and ideas by organising, comparing, translating, interpreting, giving descriptions, and stating main ideas		
2	**Applying**	20	25
	- Solve problems in new situations. Solve problems in new situations by applying acquired knowledge, facts, techniques, and rules in a different way		
3	**Analysing & Evaluating**	16	20

	- Examine and break down information. Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalisations		
	- Make judgments and evaluate ideas. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.		
Total		80	100

Internal Assessment

Component	Marks
Periodic Tests (Best 2 out of 3)	10
Mathematics Activities	10

Conduct of Periodic Tests:

Periodic Test is a Pen and Paper assessment which is to be conducted by the respective subject teacher. The format of the periodic test must have question items with a balanced mix, such as very short answer (VSA), short answer (SA), and long answer (LA) to effectively assess the knowledge, understanding, application, skills, analysis, evaluation, and synthesis. Depending on the nature of the subject, the subject teacher will have the liberty of incorporating any other types of questions too. The modalities of the PT are as follows:

a) Mode: The periodic test is to be taken in the form of a pen-paper test.
b) Schedule: In the entire Academic Year, three Periodic Tests in each subject may be conducted as follows:

Component	Marks
Activities Performed Throughout the Year (Record Keeping)	5

Year-End Test	3
Viva Voce	2
Total	10

Assessment of Activity Work:

Throughout the year any 10 activities shall be performed by the student from the activities given in the NCERT Laboratory Manual for the respective class (XI or XII) record of the same may be kept by the student. A year-end test on the activity may be conducted
The weightage is as under:

- The activities performed by the student throughout the year and record keeping: 5 marks
- Assessment of the activity performed during the year-end test: 3 marks
- Viva-voce: 2 marks

Prescribed Books for Maths Class 12 Syllabus Chapter Wise

1) Mathematics Part I - Textbook for Class XII, NCERT Publication

2) Mathematics Part II - Textbook for Class XII, NCERT Publication

3) Mathematics Exemplar Problem for Class XII, Published by NCERT

4) Mathematics Lab Manual class XII, Published by NCERT