

DIRECTORATE OF EDUCATION, GNCT of DELHI
ANNUAL SYLLABUS
CLASS: X (2026-2027)
SUBJECT: MATHEMATICS (Code: 041 & 241)

Course Structure

| Units | Unit Name | Marks |
|---------------------|--------------------------|-----------|
| I | Number Systems | 06 |
| II | Algebra | 20 |
| III | Coordinate Geometry | 06 |
| IV | Geometry | 15 |
| V | Trigonometry | 12 |
| VI | Mensuration | 10 |
| VII | Statistics & Probability | 11 |
| Total | | 80 |
| Internal Assessment | | 20 |
| Grand Total | | 100 |

| Chapter No. & name | Competencies | Explanation |
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| <p>1. REAL NUMBERS</p> <ul style="list-style-type: none"> • Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples • Proofs of irrationality of $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$ etc. | <p>The learner:</p> <ul style="list-style-type: none"> • Develops understanding of numbers, including the set of real numbers and its properties. • Extends the understanding of powers (radical powers) and exponents. • Applies Fundamental Theorem of arithmetic to solve problems related to real life contexts. | <ul style="list-style-type: none"> • Describes Fundamental Theorem of Arithmetic with examples • Prove algebraically the Irrationality of numbers $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, $3 + 2\sqrt{5}$ etc. |

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| <p>3. PAIR OF LINEAR EQUATIONS IN TWO VARIABLES</p> <ul style="list-style-type: none"> • Pair of linear equations in two variables and graphical method of their solution, consistency /inconsistency. • Algebraic conditions for number of solutions. • Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination. Simple situational problems. | <p>The learner:</p> <ul style="list-style-type: none"> • Describes plotting a pair of linear equations and graphically finding the solution. • Models and solves contextualized problems using equations (e.g., simultaneous linear equations in two variables). | <ul style="list-style-type: none"> • Find the solution of pair of linear equations in two variables graphically and algebraically (substitution and elimination method) |
| <p>5. ARITHMETIC PROGRESSIONS</p> <ul style="list-style-type: none"> • Motivation for studying Arithmetic Progression • Derivation of the nth term and sum of the first n terms of AP and their application in solving daily life problems. | <p>The learner:</p> <ul style="list-style-type: none"> • Develops strategies to apply the concept of A.P. to daily life situations. | <ul style="list-style-type: none"> • Applies concepts of AP to find the nth term and sum of n terms. • Application of AP in real life problems |
| <p>6. TRIANGLES</p> <p>Definitions, examples, counter examples of similar triangles.</p> <ul style="list-style-type: none"> • (Prove) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. • State (without proof) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side. • State (without proof) If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar. • State (without proof) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar. • State (without proof) If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar. | <p>The learner:</p> <ul style="list-style-type: none"> • works out ways to differentiate between congruent and similar figures. • establishes properties for similarity of two triangles logically using different geometric criteria established earlier such as Basic Proportionality Theorem etc. | <ul style="list-style-type: none"> • Prove Basic Proportionality theorem and applies the theorem and its converse in solving questions • Prove similarity of triangles using different similarity criteria |

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| <p>7. COORDINATE GEOMETRY</p> <ul style="list-style-type: none"> • Concepts of coordinate geometry. • Distance formula. Section formula (internal division). | <p>The learner:</p> <ul style="list-style-type: none"> • Derives formulae to establish relations for geometrical shapes in the context of a coordinate plane, such as, finding the distance between two given points, to determine the coordinates of a point between any two given points. | <ul style="list-style-type: none"> • Solves problems using distance formula and section formula |
| <p>8. INTRODUCTION TO TRIGONOMETRY</p> <ul style="list-style-type: none"> • Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined) • Motivate the ratios whichever are defined at 0° and 90°. Values of the trigonometric ratios of 30°, 45° and 60°. • Relationships between the ratios. <p>TRIGONOMETRIC IDENTITIES</p> <ul style="list-style-type: none"> • Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. • Only simple identities to be given. | <p>The learner:</p> <ul style="list-style-type: none"> • Understands the definitions of the basic trigonometric functions (including the introduction of the sine and cosine functions). • Uses Trigonometric identities to solve problems. | <ul style="list-style-type: none"> • Evaluates trigonometric ratios • Describes trigonometric ratios of standard angles and solving related expressions • Proves trigonometric identities using $\sin^2 A + \cos^2 A = 1$ and other identities |
| <p>9. HEIGHTS AND DISTANCES:</p> <p style="text-align: center;">Angle of elevation, Angle of depression</p> <ul style="list-style-type: none"> • Simple problems on heights and distances. Problems should not involve more than two right triangles. <p>Angles of elevation/depression should be only 30°, 45° and 60°.</p> | <p>The learner:</p> <ul style="list-style-type: none"> • Applies Trigonometric ratios in solving problems in daily life contexts like finding heights of different structures or distance from them. | <ul style="list-style-type: none"> • Find heights and distances in real life word problems using trigonometric ratios |
| <p>14. PROBABILITY</p> <ul style="list-style-type: none"> • Classical definition of probability. • Simple problems on finding the probability of an event. | <p>The learner:</p> <ul style="list-style-type: none"> • Applies concepts from probability to solve problems on the likelihood of everyday events. | <ul style="list-style-type: none"> • Determines the probabilities in simple real-life problems |

- **The above content is to be completed for Mid Term Examination by 05th September, 2026.**
- **Mental Maths & Maths Lab activities**
- **Revision of syllabus for Mid Term Examination**

Mid Term Examination 2026

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| <p>2. POLYNOMIALS</p> <ul style="list-style-type: none"> • Zeroes of a polynomial • Relationship between zeroes and coefficients of quadratic polynomials. | <p>The learner:</p> <ul style="list-style-type: none"> • develops a relationship between algebraic and graphical methods of finding the zeroes of a polynomial. | <ul style="list-style-type: none"> • Find the zeroes of polynomial graphically and algebraically and verifying the relation between zeroes and coefficients of quadratic polynomials. |
| <p>4. QUADRATIC EQUATIONS</p> <ul style="list-style-type: none"> • Standard form of a quadratic equation $ax^2 + bx + c = 0, (a \neq 0)$. • Solutions of quadratic equations (only real roots) by factorization, and by using quadratic formula. Relationship between discriminant and nature of roots. • Situational problems based on quadratic equations related to day-to-day activities to be incorporated | <p>The learner:</p> <ul style="list-style-type: none"> • Demonstrates strategies of finding roots and determining the nature of roots of a quadratic equation. | <ul style="list-style-type: none"> • Solves quadratic equations using factorization and quadratic formula • Determines the nature of roots using discriminant • Formulates and solves problems based on real life context |
| <p>11. AREAS RELATED TO CIRCLES</p> <ul style="list-style-type: none"> • Area of sectors and segments of a circle. • Problems based on areas and perimeter/circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of $60^\circ, 90^\circ$ and 120° only. | <p>The learner:</p> <ul style="list-style-type: none"> • Derives and uses formulae to calculate areas of plane figures. | <ul style="list-style-type: none"> • Visualises and evaluates areas of sector and segment of a circle |

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| <p>10. CIRCLES Tangent to a circle at point of contact.</p> <ul style="list-style-type: none"> • (Prove)The tangent at any point of a circle is perpendicular to the radius through the point of contact. • (Prove) The lengths of tangents drawn from an external point to a circle are equal. | <p>The learner:</p> <ul style="list-style-type: none"> • derives proofs of theorems related to the tangents of circles. | <ul style="list-style-type: none"> • Prove the theorems based on the tangent to a circle. • Applies the concept of tangents of circle to solve various problems. |
| <p>12. SURFACE AREAS AND VOLUMES</p> <ul style="list-style-type: none"> • Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones. | <p>The learner:</p> <ul style="list-style-type: none"> • Visualises and uses mathematical thinking to discover formulae to calculate surface areas and volumes of solid objects (cubes, cuboids, spheres, hemispheres, right circular cylinders/cones, and their combinations). | <ul style="list-style-type: none"> • Evaluates the surface areas and volumes of combinations of solids by visualisation |
| <p>13. STATISTICS</p> <ul style="list-style-type: none"> • Mean, median and mode of grouped data (bimodal situation to be avoided). | <p>The learner:</p> <ul style="list-style-type: none"> • Calculates mean, median and mode for different sets of data related with real life contexts. | <ul style="list-style-type: none"> • Computes the mean, of a grouped frequency distribution using direct, assumed mean and step deviation method. • Computes the median and mode of grouped frequency distribution by algebraic method |
| <ul style="list-style-type: none"> ➤ The whole syllabus is to be completed for Annual Examination by 05th December, 2026. ➤ Mental Maths & Maths Lab activities ➤ Revision of syllabus for Annual Examination | | |
| <p>Pre-board Examination 2026</p> | | |
| <ul style="list-style-type: none"> ➤ The annual examination will comprise the whole syllabus. ➤ Practice of Sample question papers provided by CBSE and DOE. ➤ Revision of whole syllabus for Board Examination. | | |
| <p>Board Examination 2027</p> | | |

MATHEMATICS - STANDARD (Code-041)
QUESTION PAPER DESIGN CLASS – X (2026-27)

Time: 3 Hours

Max. Marks: 80

| S. No. | Typology of Questions | Total Marks | % Weightage (approx.) |
|---|---|-----------------|-----------------------|
| 1 | <p>Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.</p> <p>Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas</p> | 43 | 54 |
| 2 | <p>Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.</p> | 19 | 24 |
| 3 | <p>Analysing: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations</p> <p>Evaluating: Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.</p> <p>Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions</p> | 18 | 22 |
| Total | | 80 | 100 |
| INTERNAL ASSESSMENT | | 20 MARKS | |
| Pen Paper Test and Multiple Assessment (5+5) | | 10 MARKS | |
| Portfolio | | 05 MARKS | |
| Lab Practical (Lab activities to be done from the prescribed books) | | 05 MARKS | |

MATHEMATICS - BASIC (Code-041)
QUESTION PAPER DESIGN CLASS-X (2026-27)

Time: 3 Hours

Max. Marks: 80

| S. No. | Typology of Questions | Total Marks | % Weightage (approx.) |
|---|---|-----------------|-----------------------|
| 1 | <p>Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.</p> <p>Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas</p> | 60 | 75 |
| 2 | <p>Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.</p> | 12 | 15 |
| 3 | <p>Analysing: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations</p> <p>Evaluating: Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.</p> <p>Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions</p> | 8 | 10 |
| Total | | 80 | 100 |
| INTERNAL ASSESSMENT | | 20 MARKS | |
| Pen Paper Test and Multiple Assessment (5+5) | | 10 MARKS | |
| Portfolio | | 05 MARKS | |
| Lab Practical (Lab activities to be done from the prescribed books) | | 05 MARKS | |