

**CBSE X 2025**

**Chapter and Topic-Wise  
Solved Papers  
2011-2024**

**Mathematics**  
Standard & Basic

 **Career  
Launcher**

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Chapter and Topic-wise Solved Papers 2011 - 2024

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# ▶ PREFACE

Class X Board Exams are a race against time. You must know how to manage time efficiently if you want to ace your exams. At Career Launcher, we understand the struggle of attempting such a crucial examination for the first time and the pressure that comes along with it. Which is why, our Chapter and Topic-Wise Solved Papers for Mathematics have been designed to help you become acquainted with the exam pattern and hone your time management skills, both at the same time.

Exclusively designed for the students of CBSE Class X by highly experienced teachers, the book provides answers to all actual questions of Mathematics Board Exams conducted from 2011 to 2024. The solutions have been prepared exactly in coherence with the latest marking pattern; after a careful evaluation of previous year trends of the questions asked in Class X Boards and actual solutions provided by CBSE.

The book follows a three-pronged approach to make your study more focused. The questions are arranged Chapter-wise so that you can begin your preparation with the areas that demand more attention. These are further segmented topic-wise and eventually the break-down is as per the marking scheme. This division will equip you with the ability to gauge which questions require more emphasis and answer accordingly. Apart from this, several value-based questions have also been included.

We hope the book provides the right exposure to Class X students so that you not only ace your Boards but mold a better future for yourself. And as always, Career Launcher's school team is behind you with its experienced gurus to help your career take wings.

Let's face the Boards with more confidence!

Wishing you all the best,

Team CL



## Blueprint & Marks Distribution

Class 10<sup>th</sup> Mathematics 2024-25 Analysis Unit Wise

Unit No.	Name	No. of Periods	Marks
I	Number Systems	15	6
II	Algebra	45	20
III	Coordinate Geometry	14	6
IV	Geometry	31	15
V	Trigonometry	33	12
VI	Mensuration	24	10
VII	Statistics & Probability	28	11
	<b>Total</b>		<b>80</b>
	<b>Internal Assessment</b>		<b>20</b>
<b>Grand Total</b>		<b>190</b>	<b>100</b>



## UNIT I: NUMBER SYSTEMS

(15) PERIODS

### 1. REAL NUMBERS

Fundamental Theorem of Arithmetic - statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of irrationality of  $\sqrt{2}$ ,  $\sqrt{3}$ ,  $\sqrt{5}$ .

## UNIT II: ALGEBRA

### 1. POLYNOMIALS

(8) PERIODS

Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials.

### 2. PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

(15) PERIODS

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.

### 3. QUADRATIC EQUATIONS

(15) PERIODS

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.

### 4. ARITHMETIC PROGRESSIONS

(10) PERIODS

Motivation for studying Arithmetic Progression Derivation of the  $n^{\text{th}}$  term and sum of the first  $n$  terms of A.P. and their application in solving daily life problems.

## UNIT III: COORDINATE GEOMETRY

(15) PERIODS

**REVIEW:** Concepts of coordinate geometry, graphs of linear equations. Distance formula. Section formula (internal division). Area of a triangle.

## UNIT IV: GEOMETRY

### 1. TRIANGLES

(15) PERIODS

Definitions, examples, counter examples of similar triangles.

1. (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.

2. (Motivate) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side.
3. (Motivate) If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar.
4. (Motivate) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar.
5. (Motivate) 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.

## 2. CIRCLES

(10) PERIODS

Tangent to a circle at, point of contact

1. (Prove) The tangent at any point of a circle is perpendicular to the radius through the point of contact.
2. (Prove) The lengths of tangents drawn from an external point to a circle are equal.

## UNIT V: TRIGONOMETRY

### 1. INTRODUCTION TO TRIGONOMETRY

(10) PERIODS

Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); motivate the ratios whichever are defined at  $0^\circ$  and  $90^\circ$ . Values of the trigonometric ratios of  $30^\circ$ ,  $45^\circ$  and  $60^\circ$ . Relationships between the ratios.

### 2. TRIGONOMETRIC IDENTITIES

(15) PERIODS

Proof and applications of the identity  $\sin^2 A + \cos^2 A = 1$ . Only simple identities to be given.

### 3. HEIGHTS AND DISTANCES: Angle of elevation, Angle of Depression. (10) PERIODS

Simple problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only  $30^\circ$ ,  $45^\circ$ , and  $60^\circ$ .

## UNIT VI: MENSURATION

### 1. AREAS RELATED TO CIRCLES

(12) PERIODS

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  $120^\circ$  only.

### 2. SURFACE AREAS AND VOLUMES

(12) PERIODS

Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones.

## UNIT VII: STATISTICS AND PROBABILITY

### 1. STATISTICS

(18) PERIODS

Mean, median and mode of grouped data (bimodal situation to be avoided).

### 2. PROBABILITY

(10) PERIODS

Classical definition of probability. Simple problems on finding the probability of an event.

# MATHEMATICS-STANDARD QUESTION PAPER DESIGN

## CLASS – X (2024-25)

Time : 3 Hours

Max. Marks: 80

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

<b>INTERNAL ASSESSMENT</b>	<b>20 MARKS</b>
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 QUESTION PAPER DESIGN

## CLASS – X (2024-25)

Time : 3Hours

Max. Marks: 80

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

<b>INTERNAL ASSESSMENT</b>	<b>20 MARKS</b>
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

