

CLASS
10



PHYSICS
WALLAH

CBSE

15 **SAMPLE QUESTION PAPERS**

NEW PATTERN

As per Latest CBSE SQP (Dated 30 July 2025)

**MATHEMATICS
STANDARD**

With CBSE SQP, 2024 & 2025 Solved Papers

2026
EXAMINATION

Additional Features

- **14** Cheat Sheets (Mindmap)
- **11** Most Probable Questions
- **4** Answering Templates
- **3** SQPs with Marks Breakdown



Chapter Wise Weightage & Trend analysis

CBSE PAST 5 YEARS' PAPERS

CHAPTERS	MATHEMATICS										
	2020		2022		2023		2024		2025		
	DL	ODL	DL	ODL	DL	ODL	DL	ODL	DL	ODL	
Real Numbers	6	6	-	-	6	6	6	6	6	6	
Polynomials	8	3	-	-	4	3	3	5	4	2	
Pair of Linear Equations in Two Variables	4	8	-	-	5	4	6	6	6	6	
Quadratic Equations	3	7	6	5	6	5	5	4	6	7	
Arithmetic Progressions	8	5	4	5	5	6	6	5	4	5	
Triangles	7	7	-	-	7	7	7	8	9	8	
Coordinate Geometry	6	6	-	-	6	8	6	6	6	6	
Introduction to Trigonometry	5	7	-	-	6	6	7	7	7	7	
Some Applications of Trigonometry	7	5	7	7	6	6	5	5	5	5	
Circles	4	4	6	6	8	8	8	7	6	7	
Constructions (Rationalised)	4	4	3	3	-	-	-	-	-	-	
Areas Related to Circles	2	5	-	-	5	4	5	-	4	4	
Surface Areas and Volumes	8	9	6	6	5	6	5	10	6	6	
Statistics	7	7	8	8	6	5	6	5	7	5	
Probability	4	4	-	-	5	6	5	6	4	6	

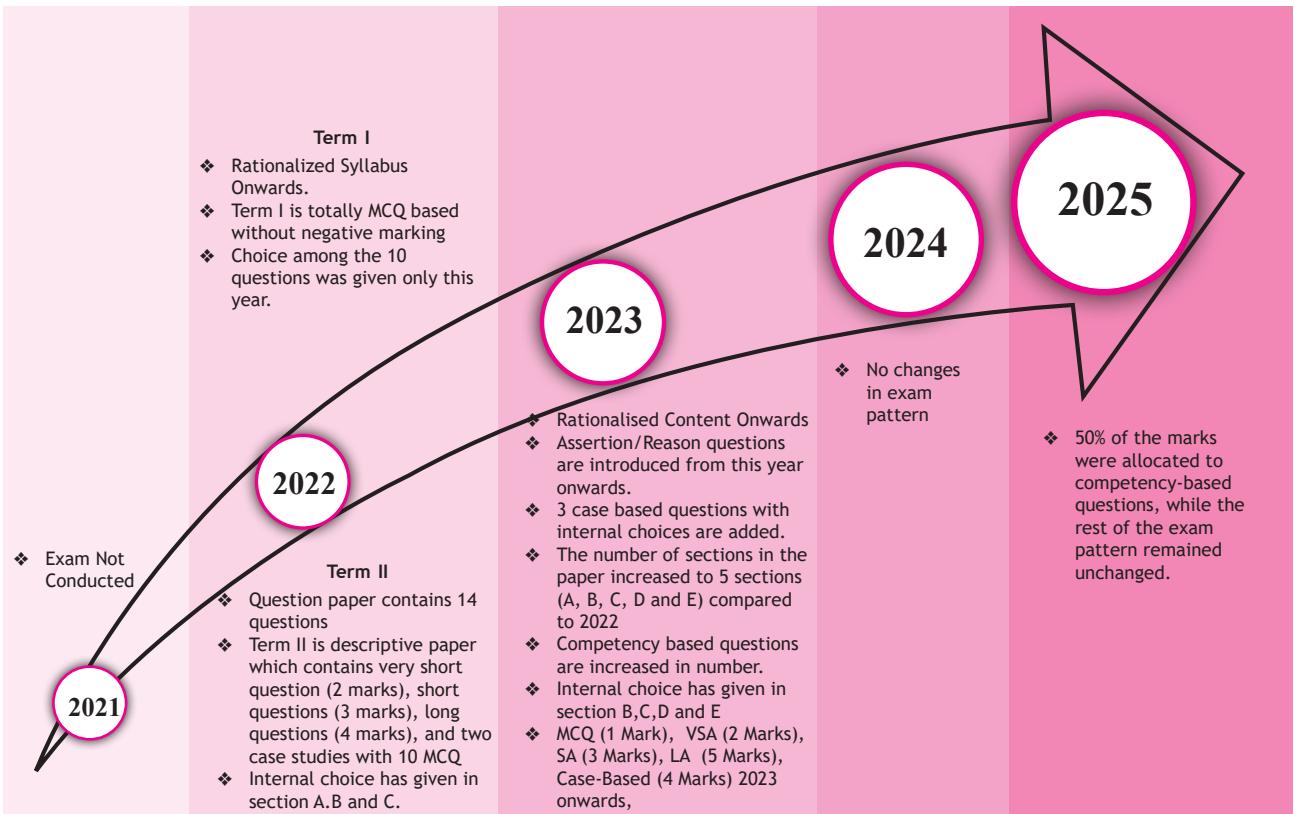
*The marks allotment mentioned above is chapter-wise and includes internal choice questions as well. Therefore, the total might not match the Maximum Marks of the respective Previous Year Paper. Here, DL is Delhi, ODL is Outside Delhi.

* For the year 2021, the exam was not conducted.

Question Typology

YEAR	Objective Questions		Subjective Questions			
	MCQs	A/R	VSA	SA	LA	Case Based type
2025	18	2	5	6	4	3
2024	18	2	5	6	4	3
2023	18	2	5	6	4	3
2022 (Term-II)			6	3	2	2
2022 (Term-I)	40					2
2021	Exam Not Conducted					

Evolving Trends in CBSE Exam Patterns



Preparation Guide!

❖ Chapter-wise Weightage & Trend Analysis

Revise smartly with a clear understanding of chapter-wise marks distribution based on the last 5 years of CBSE board exams. Identify high-weightage chapters and focus your efforts strategically.

❖ Answering Templates

Master the art of writing scoring answers using pre-designed templates. Learn how to structure your responses as per CBSE's expectations—write precisely, score efficiently.

❖ Board-based FAQs

Get clear, concise answers to all your common questions about the CBSE board exams and the latest 2026 exam pattern. Scan the QR provided for more FAQs.

❖ CBSE 2026: Two Board Exams Scheme

Understand the new Two-Exam System introduced by CBSE—its purpose, key features, and how it changes your preparation strategy. Gain clarity on what it means for phase 1 and phase 2.

❖ OMR Mastery

Follow step-by-step guidance on correctly filling the OMR sheet. Learn the dos and don'ts to ensure accuracy and avoid common mistakes.

❖ Practice Pack: 12 SQPs

Start with easy level SQPs to build confidence and move to medium difficulty level SQPs for skill-building. Challenge yourself with hard sample papers for full-syllabus preparation and deeper insight.

❖ Solutions with Step-wise Marking Scheme

Get detailed, stepwise solutions for every question. Understand answer logic, avoid frequent errors, and learn the marking scheme through 3 SQPs with marks breakdown table.

❖ Recent CBSE Board Papers & SQPs

Practice with the latest Sample Question Paper (2025–26), along with 2024 and 2025 board papers. Understand evolving patterns, new question types, and updated evaluation trends.

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Scan for Latest
Syllabus &
Upcoming
CBSE SQPs



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Frequently Asked Questions



Scan for More FAQs

1

Question: Are the total number of questions, total marks and duration the same in CBSE SQP 2025-26 and 2025 Board Paper?

2

Question: Is there any change in the assessment scheme for the current academic session (2025-26)?

3

Question: I have a doubt whether the pre board examinations marks would be considered in the board examinations?

4

Answer: No, the marks obtained in the pre-board examination are not added or included in the Board examination marks.

4

Question: If a choice is given to attempt any one of the questions in the Board exam, can we attempt both? If yes, which answer would be considered?

5

Question: Is it compulsory to write the answers in the same sequence as in the question paper?

6

Question: Do examiners deduct marks for exceeding the word limit and spelling mistakes, especially in the language papers?

Answer:

No marks are deducted for exceeding the word limit. Marks for spelling mistakes and other errors are deducted in the Language Papers.

CBSE Board Exam 2026: Two-Exam Scheme Decoded

1. What is the major change in Class X Board exams from 2026?

Ans: Starting in 2026, CBSE will conduct two Board exams per year for Class X, one main examination and one for improvement, if desired. This aims to offer students more flexibility and reduce pressure.

2. Why are two Board exams being introduced?

Ans: This is in line with the National Education Policy (NEP) 2020, which emphasizes holistic assessment, focus on core competencies, and reducing rote memorization.

Two Board exams aim to eliminate the high-stress/high-stakes nature of a single final exam and provide students more opportunities to improve.

3. Can I appear for both exams in the same year?

Ans. Yes, you can appear in both exams within the same school year:

First Board Examination (Main Exam)

You must appear in the first Board Examination, as it is mandatory for all students.

Eligible categories:

- Fresh students of Class X
- Students in Compartment (2nd Chance)
- Students repeating the year (Essential Repeat)
- Students appearing for improvement of previous performance

Second Board Examination

You can appear in the second examination in the following cases:

- Improvement: For up to 3 subjects to improve your score.
- Compartment: If you were placed in Compartment in the first phase exam.
- Improvement + Compartment: You can appear for both in May.
- Improvement for the students passed by the replacement of the subject.

Note: You are not allowed to take the second examination if you didn't appear in at least 3 subjects during the first examination. In such cases, you'll fall under the "Essential Repeat" category and have to wait until the next year.

4. When will the exams be held?

Ans. First Phase Examination: 17 February to 6 March 2026

Second Phase Examination: 5 May to 20 May 2026

5. Is it mandatory to attempt the First Phase exam for all students?

Ans. Yes, it is mandatory to attempt the First Phase Exam for all Class X students. It will be treated as the main board examination.

6. Is it mandatory to attempt the Second Phase exam? Who can appear for it?

Ans. No, the May exam is not mandatory. It is an optional attempt meant for:

- Students who want to improve their scores
- Students who were absent or could not perform well in the February exam
- Students who fail in one or more subjects in the first phase

7. Will the syllabus remain the same for both first and second examinations?

Ans. Yes, the syllabus will be the same for both the first and second examinations. Both examinations will be based on the full syllabus prescribed for the academic year.

INSTRUCTIONS FOR FILLING THE OMR SHEET

- Use a black or blue ballpoint pen to fill the OMR sheet. Pencils or gel pens are not allowed.
- Carefully read the instructions given on the OMR sheet before filling it out.
- While filling the name, leave a block between your first name, middle and last name.
- The student has to fill the following particulars in the answer sheet:

From Admit Card

1. Subject	2. Sub Code	3. Date of Examination	4. Candidate's Name
5. Father's Name	6. Roll No. (In digits)	7. Roll No. (In words)	8. Centre No. 9. School No.

From Question Paper

10. Set Number	11. Code Number
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ADMIT CARD



CENTRAL BOARD OF SECONDARY EDUCATION, DELHI

ADMIT CARD FOR SECONDARY EXAMINATION 2026

LATEST ENTRY IN EXAMINATION CENTRE 30 MIN BEFORE THE EXAM START 10 AM (IST)



Roll No.

22122532

Date of Birth

26/02/2008

School No.

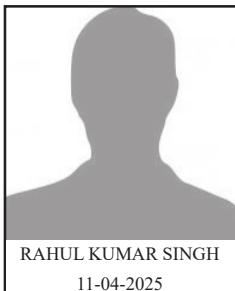
65345

Centre No.

8407

Roll. No. (In words)

TWO CRORE TWENTY ONE LAKH TWENTY TWO THOUSAND FIVE HUNDRED THIRTY TWO ONLY



RAHUL KUMAR SINGH
11-04-2025

Examination	SECONDARY - CLASS: 10
Candidate's Name	RAHUL KUMAR SINGH
Mother's Name	REKHA DEVI
Father/Guardian's Name	OM PRAKASH SINGH
of School	*****
Exam Centre	*****
Category of PwD	Not Applicable
Admit Card ID	RR536521



SUB CODE	SUBJECT NAME	MEDIUM	DATE
002	HINDI COURSE-A	...	21.02.2026
184	ENGLISH (LANGUAGE AND LITERATURE)	...	26.02.2026
086	SCIENCE	...	02.03.2026
087	SOCIAL SCIENCE	...	07.03.2026
041	MATHEMATICS STANDARD	...	11.03.2026

QUESTIONPAPER

Series WYZX1/4



Set No. 2

Roll No.

2 2 1 2 2 5 3 2

Candidates must write the Q.P. Code on the title page of the answer book.

Q.P. Code 2/4/2

SELF ASSESSMENT SHEET

Self-assessment plays a crucial role in exam preparation and offers several advantages:

- **Enhanced Self-awareness:** Self-assessment sheets help students gain a deeper understanding of their strengths and weaknesses across various subjects. Specific feedback on their performance provides valuable insights into areas of excellence and those that require improvement.
- **Focused Study:** These sheets provide clear guidance to students on where to direct their efforts. Identifying which questions to review, reattempt, or practice allows for more efficient and purposeful study sessions.
- **Targeted Improvement:** By categorizing questions into different categories (e.g., Easy, Revise, Reattempt), students can concentrate on areas that require the most attention. This targeted approach can result in significant improvements in their comprehension and performance.
- **Motivation:** Self-assessment sheets serve as a source of motivation for students. Observing their progress and understanding the steps needed for improvement can boost their motivation to work harder and achieve better results.
- **Reduced Exam Anxiety:** Having a clear understanding of their preparation progress helps reduce exam-related anxiety. Students feel more confident when they know what aspects to focus on, leading to a calmer and more effective exam experience.
- **Time Management:** Self-assessment sheets aid students in managing their study time more effectively. They can allocate more time to areas requiring extensive revision or reattempt while spending less time on topics they have already mastered.

Self evaluation Instruction: After completing the test, evaluate it using the provided explanations. Use only a pencil to mark the evaluations (allowing for revisions and reattempts). Record the marks obtained in the Marks section and provide remarks in the Remarks column.

Remarks abbreviations:

- **Easy (E):** Use for questions that you should find straightforward, indicating a good understanding and correct answers.
- **Revise (R):** Assign to questions where your response contains minor errors or gaps in understanding, suggesting the need for topic review.
- **Reattempt (RA):** Use for questions with incorrect responses, significant misconceptions, or a lack of understanding. Students receiving this remark should revisit the topic thoroughly, seek additional help if necessary, and attempt similar questions to enhance their grasp of the concept.

EXAM READY: ANSWERING TEMPLATES THAT SCORE

Proving (Equation Based) Type

Q. If $\cos \theta + \sin \theta = 1$, when prove that $\cos \theta - \sin \theta = \pm 1$

Ans.

Given: It is given that $\cos \theta + \sin \theta = 1$.

To prove: _____

Explanation: Start by squaring both sides of the given equation $\cos \theta + \sin \theta = 1$.

Conclusion: Hence, $\cos \theta - \sin \theta =$ _____

Proving (Theorem/Concept Based) Type

Q. Prove that $\sqrt{3}$ is an irrational number.

Ans.

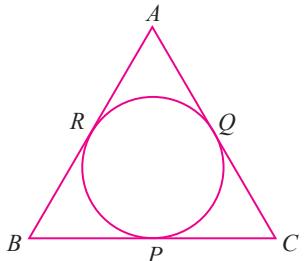
To prove: _____

Explanation: Assume that $\sqrt{3}$ is _____ and can be written as _____

Conclusion: Hence, $\sqrt{3}$ is _____

Q. Prove that the lengths of tangents drawn from an external point to a circle are equal.

Using above result, find the length BC of $\triangle ABC$. Given that, a circle is inscribed in $\triangle ABC$ touching the sides AB , BC and CA at R , P and Q respectively and $AB = 10$ cm, $AQ = 7$ cm, $CQ = 5$ cm.



Ans.

Given: $AB =$ _____ cm, $AQ =$ _____ cm, $CQ =$ _____ cm.

To find: _____

Explanation: Start by using the property that the lengths of tangents drawn from an _____ to a circle are _____

Conclusion: Hence, the length of BC is _____

CHAPTER-1

REAL NUMBERS



Cheat Sheet

To Access One
Shot Revision Video
Scan This QR Code



The Fundamental Theorem of Arithmetic:

- Every composite number can be expressed (factorized) as a product of primes, and this factorisation is unique, apart from the order in which the prime factors occur.

Note: Fundamental theorem of arithmetic is called a Unique Factorisation Theorem.

Composite number = Product of prime numbers.

e.g. $24 = 2 \times 2 \times 2 \times 3$

$= 2^3 \times 3$, where 2 and 3 are prime numbers

Theorems:

- Theorem 1:** Let p be a prime number. If p divides a^2 , then p divides a , where a is a positive integer.
- Theorem 2:** $\sqrt{2}$ is an irrational number.

Note: Square root of any prime number is always an irrational number

CBSE 2025, 2024, 2023, 2020, 2019

Irrational Numbers:

It cannot be expressed as $x = \frac{p}{q}$, $q \neq 0$, where p and q are integers.

e.g.: $\sqrt{2}, \sqrt{3}, \pi, \dots$

CBSE 2025, 2024, 2023, 2022 Term-I, 2020, 2019

Prime Factorisation Method:

Prime Factorisation is a way of representing a number as a product of its prime factors. It is also used to find out the H.C.F and L.C.M.

For any two positive integers a and b we have,

$$\text{H.C.F}(a, b) \times \text{L.C.M}(a, b) = a \times b$$

e.g.: Find H.C.F of 24 and 36.

Prime factors of 24 : $2^3 \times 3^1$

Prime factors of 36 : $2^2 \times 3^2$

$$\text{H.C.F} = 2^2 \times 3^1 = 12$$

e.g.: Find L.C.M of 12 and 18.

Prime factors of 12 : $2^2 \times 3^1$

Prime factors of 18 : $2^1 \times 3^2$

$$\text{L.C.M} = 2^2 \times 3^2 = 36$$

Real Numbers

Rational Numbers:

It can be expressed as $x = \frac{p}{q}$, $q \neq 0$, where p and q are integers.

e.g.: $\frac{1}{4}, \frac{2}{3}, 2, \dots$

Integers 'Z' or 'I':

Integers include all whole numbers and negative numbers.

e.g.: $\dots -3, -2, -1, 0, 2, 3, \dots$

Whole Number 'W':

The whole number which includes all the non-negative integers.

W: 0, 1, 2, 3, ...

Natural Number 'N':

Natural numbers are all positive integers

N: 1, 2, 3, ...

Zero

CBSE 2020

Prime Number:

Prime numbers are natural numbers that are divisible by only 1 and the number itself.
e.g. 2, 3, 5, 7, 11, 13....

CBSE 2024

Composite Number:

Composite numbers are numbers that have more than two factors.

e.g. 4, 6, 8, 9, 10, 12....

CBSE 2022 Term-I

Co-prime Number:

Co-prime numbers are two pairs of numbers which have a common factor of 1.

e.g. (14, 15), (1, 99), (8, 15)

CHAPTER-2

POLYNOMIALS



Cheat Sheet

To Access One
Shot Revision Video
Scan This QR Code



Linear Polynomial:

$$p(x) = ax + b, a \neq 0$$

Quadratic Polynomial:

$$p(x) = ax^2 + bx + c, a \neq 0$$

Cubic Polynomial:

$$p(x) = ax^3 + bx^2 + cx + d, a \neq 0$$

CBSE 2020

CBSE 2023, 2022 Term-I, 2020

Formation of Quadratic and Cubic Polynomial:

1. Quadratic polynomial having α and β as its zeroes is given by $p(x) = k\{x^2 - (\alpha + \beta)x + \alpha\beta\}$, where k is any non-zero real number.
2. Cubic polynomial having α , β , and γ as its zeroes is given by $p(x) = k\{x^3 - (\alpha + \beta + \gamma)x^2 + (\alpha\beta + \beta\gamma + \gamma\alpha)x - \alpha\beta\gamma\}$, where k is any non-zero real number.

CBSE 2024

Degree of Polynomial:

Highest power of the variable is known as the degree of the polynomial.

Polynomial:
A polynomial is defined as an expression that includes variables, constants and exponents.

General Form:

$$p(x) = a_0x^n + a_1x^{n-1} + a_2x^{n-2} + a_3x^{n-3} + \dots + a_{n-1}x^1 + a_n,$$

where all the powers are non-negative integers and

$$a_0, a_1, \dots, a_n \in R$$

CBSE 2022 Term-I

Zeroes of Polynomials:

The value of x where the graph intersect x -axis

CBSE 2023, 2020

Zeroes of Linear Polynomial:

If k is zero of $p(x) = ax + b, a \neq 0$

$$\text{i.e. } p(k) = ak + b = 0$$

$$\therefore k = \frac{-b}{a} = \frac{-\text{Constant term}}{\text{Coefficient of } x}$$

CBSE 2025, 2024, 2023, 2022 Term-I & II, 2019

Zeroes of Quadratic Polynomial:

If α and β are zeroes of quadratic polynomial $p(x) = ax^2 + bx + c, a \neq 0$

$$\alpha + \beta = \frac{-b}{a} = \frac{-\text{Coefficient of } x}{\text{Coefficient of } x^2}$$

$$\text{and } \alpha \cdot \beta = \frac{c}{a} = \frac{\text{Constant term}}{\text{Coefficient of } x^2}$$

Zeroes of Cubic Polynomial:

If α , β , and γ are the zeroes of the cubic polynomial $p(x) = ax^3 + bx^2 + cx + d$, then,

$$\alpha + \beta + \gamma = \frac{-b}{a} = -\frac{\text{Coefficient of } x^2}{\text{Coefficient of } x^3}$$

$$\alpha\beta + \beta\gamma + \gamma\alpha = \frac{c}{a} = \frac{\text{Coefficient of } x}{\text{Coefficient of } x^3}$$

$$\alpha\beta\gamma = \frac{-d}{a} = -\frac{\text{Constant term}}{\text{Coefficient of } x^3}$$

111 MOST PROBABLE QUESTIONS (ANALYZED & SELECTED FROM PYQs)

To Access Detailed Explanations
Scan This QR Code



Note: Questions in this section are selected based on repetitive themes and concepts from past examinations, though patterns and typologies may vary.

1. Real Numbers

- If two positive integers p and q can be expressed as $p = 18 a^2 b^4$ and $q = 20 a^3 b^2$, where a and b are prime numbers, then $\text{LCM}(p, q)$ is; **(1 M) (2024)**

(a) $2 a^2 b^2$ (b) $180 a^2 b^2$
 (c) $12 a^2 b^2$ (d) $180 a^3 b^4$
- If the $\text{HCF}(2520, 6600) = 40$ and $\text{LCM}(2520, 6600) = 252 \times k$, then the value of k is **(1 M) (2024)**

(a) 1650 (b) 1600
 (c) 165 (d) 1625
- The exponent of 5 in the prime factorisation of 3750 is: **(1 M) (2022 Term-I)**

(a) 3 (b) 4 (c) 5 (d) 6
- Three alarm clocks ring their alarms at regular intervals of 20 min, 25 min and 30 min respectively. If they first beep together at 12 noon, at what time will they beep again for the first time? **(1 M) (2022 Term-I)**

(a) 4:00 pm (b) 4:30 pm
 (c) 5:00 pm (d) 5:30 pm
- Prove that $5 - 2\sqrt{3}$ is an irrational number. It is given that $\sqrt{3}$ is an irrational number. **(2 M) (2024)**
- Find the LCM and HCF of 72 and 120. **(2 M) (2023)**
- Prove that $\sqrt{5}$ is an irrational number. **(3 M) (2024)**
- Prove that $\sqrt{2}$ is an irrational number. **(3 M) (2025)**

2. Polynomials

- If α and β are zeroes of the polynomial $2x^2 - 9x + 5$, then value of $\alpha^2 + \beta^2$ is **(1 M) (2024)**

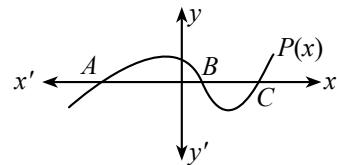
(a) $\frac{1}{4}$ (b) $\frac{61}{4}$ (c) 1 (d) $\frac{71}{4}$
- If α, β are the zeroes of the polynomial $p(x) = 4x^2 - 3x - 7$, then $\left(\frac{1}{\alpha} + \frac{1}{\beta}\right)$ is equal to: **(1 M) (2023)**

(a) $\frac{7}{3}$ (b) $-\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-\frac{3}{7}$

- If one zero of the polynomial $x^2 + 3x + k$ is 2, then the value of k . **(1 M) (2023)**

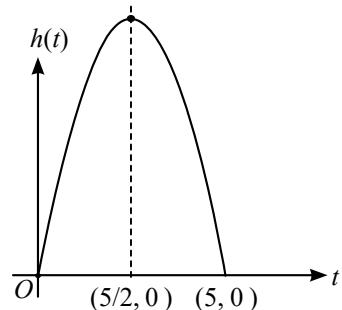
(a) -10 (b) 10 (c) 5 (d) -5
- If the zeroes of the quadratic polynomial $x^2 + (a+1)x + b$ are 2 and -3, then **(1 M) (2023)**

(a) $a = -7, b = -1$ (b) $a = 5, b = -1$
 (c) $a = 2, b = -6$ (d) $a = 0, b = -6$
- In figure, the graph of a polynomial $P(x)$ is shown. The number of zeroes of $P(x)$ is **(1 M) (2022 Term-I)**



(a) 1 (b) 2 (c) 3 (d) 4

- Find a quadratic polynomial, the sum and product of whose zeroes are 0 and $-\frac{3}{5}$ respectively. Hence find the zeroes. **(3 M) (2016 Term-I)**
- α and β are zeroes of a quadratic polynomial $px^2 + qx + 1$. Form a quadratic polynomial whose zeroes are $\frac{2}{\alpha}$ and $\frac{2}{\beta}$. **(3 M) (2025)**
- A ball is thrown in the air so that t seconds after it is thrown, its height H metre above its starting point is given by the polynomial $h = 25t - 5t^2$. **(2024)**



Roll No.

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Q.P. Code **01**



Candidates must write the Q.P. Code on the title page of the answer book.

SAMPLE QUESTION PAPER-I

MATHEMATICS (STANDARD) - Theory

Time allowed : 3 hours

Maximum Marks : 80

NOTE:

- (i) Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- (ii) Please check that this question paper contains **38** questions.
- (iii) Please write down the Serial Number of the question in the answer-book before attempting it.
- (iv) 15 minute time has been allotted to read this question paper. The students will read the question paper only and will not write any answer on the answer-book during this period.

GENERAL INSTRUCTIONS:

Read the following instructions carefully and follow them:

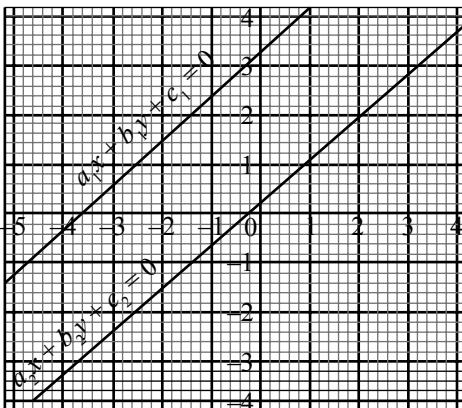
- (i) This question paper contains **38** questions. **All** questions are compulsory.
- (ii) Question paper is divided into **FIVE** sections – **Section A, B, C, D and E**.
- (iii) In **Section A** – question number **1** to **18** are multiple choice questions (MCQs) and question number **19** and **20** are Assertion-Reason based questions of **1** mark each.
- (iv) In **Section B** – question number **21** to **25** are Very Short Answer (VSA) type questions of **2** Marks each.
- (v) In **Section C** – question number **26** to **31** are Short Answer (SA) type questions carrying **3** marks each.
- (vi) In **Section D** – question number **32** to **35** are Long Answer (LA) type questions carrying **5** marks each.
- (vii) In **Section E** – question number **36** to **38** are **case based integrated units** of assessment questions carrying **4** marks each. Internal choice is provided in **2** marks question in each case-study.
- (viii) There is no overall choice. However, an internal choice has been provided in **2** questions in **Section B**, **2** questions in **Section C**, **2** questions in **Section D** and **3** questions in **Section E**.
- (ix) Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.
- (x) Use of calculators is **NOT allowed**.

SECTION - A

Section - A consists of Multiple Choice type questions of 1 mark each.

1. If the zeroes of the quadratic polynomial $ax^2 + bx + c$, ($a \neq 0$) are equal, then

(a) c and b are have opposite sign.	(b) c and a have opposite sign.
(c) c and b have same sign.	(d) c and a have same sign.
2. The lines representing the given pair of linear equations are non-intersecting. Which of the following statements is true?



- (a) $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$ (b) $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$
 (c) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} = \frac{c_1}{c_2}$ (d) $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$
3. 30^{th} term of the A.P. : 10, 7, 4, ... is

(a) 97	(b) 77	(c) -77	(d) -87
--------	--------	---------	---------
4. The distance between the points $(m, -n)$ and $(-m, n)$ is

(a) $\sqrt{m^2 + n^2}$	(b) $m + n$	(c) $2\sqrt{m^2 + n^2}$	(d) $\sqrt{2m^2 + 2n^2}$
------------------------	-------------	-------------------------	--------------------------
5. The length of the tangent from an external point A on a circle with centre O is

(a) Always greater than OA .	(b) Equal to OA .	(c) Always less than OA .	(d) Cannot be estimated.
--------------------------------	---------------------	-----------------------------	--------------------------
6. If $\sin A + \sin^2 A = 1$, then the value of the expression $\cos^2 A + \cos^4 A$ is

(a) 1	(b) $\frac{1}{2}$	(c) 2	(d) 3
-------	-------------------	-------	-------
7. A rectangular garden has a perimeter of 60 meters. The area of the garden can be expressed as a quadratic function $A(x) = x^2 - 15x$, where x is the width of the garden in meters.

Which of the following equations must Ravi be considering if one of its roots is zero?

Statement I: The roots of the quadratic equation $A(x) = 0$ represent the possible dimensions of the garden.

Statement II: The discriminant of $A(x) = 0$ is positive, indicating two distinct real roots.

Statement III: The sum of the roots of $A(x) = 0$ equals the perimeter of the garden.

Which of the following statements is/are correct?

(a) Only statement I	(b) Only statement I and II
(c) Only statement II and III	(d) All statement I, II and III

SAMPLE QUESTION PAPER- I

(Explanations)

Marking Scheme (Ques 1-20)

30 Min

Each question carries 1 mark.

1. (d) We know, for equal roots, discriminant will be equal to zero.

$$\therefore D = 0$$

$$\Rightarrow b^2 - 4ac = 0 \Rightarrow b^2 = 4ac$$

$$\Rightarrow ac = b^2/4 \Rightarrow ac > 0$$

Hence, it is only possible when both a and c have same sign.

2. (b) The lines representing the linear equations are parallel. Hence, we have no solution for the given pair of equations.

and $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ is true in case of no solution.

3. (c) Given: $a = 10, n = 30$

$$d = 7 - 10 = -3$$

We know $a_n = a + (n - 1)d$

$$\therefore a_{30} = 10 + (30 - 1)(-3) \\ = 10 - 29 \times 3 = -77$$

4. (c) Given points are $(m, -n)$ and $(-m, n)$

$$\text{Let, } x_1 = m, y_1 = -n$$

$$x_2 = -m, y_2 = n$$

Distance between A and B

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\Rightarrow AB = \sqrt{(-m - m)^2 + (n - (-n))^2}$$

$$\Rightarrow AB = \sqrt{(-2m)^2 + (2n)^2} \Rightarrow AB = 2\sqrt{m^2 + n^2}$$

Topper's Explanation

(CBSE 2020)

$$A(m, -n)$$

$$B(-m, n)$$

$$AB = \sqrt{(m + m)^2 + (-n - n)^2}$$

$$AB = \sqrt{4m^2 + 4n^2}$$

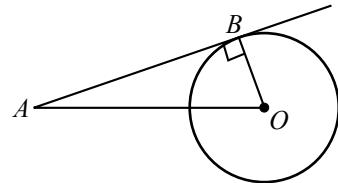
$$AB = 2\sqrt{m^2 + n^2}$$



Mistakes 101 : What not to do!

In this type of problem, students may do mistakes in entering incorrect coordinates into the formula.

5. (c) We know, The tangent is perpendicular to the radius of the circle, then angle between them is 90° .



Thus OA is hypotenuse for the right triangle OAB , which is right – angled at B .

For any right triangle, the hypotenuse is the longest side.

The length of the tangent from an external point is always less than the OA .

6. (a) Given, $\sin A + \sin^2 A = 1$

$$\sin A = 1 - \sin^2 A = \cos^2 A \quad [\because \sin^2 \theta + \cos^2 \theta = 1]$$

On squaring both sides, we get

$$\sin^2 A = \cos^4 A$$

$$\Rightarrow 1 - \cos^2 A = \cos^4 A$$

$$\Rightarrow \cos^2 A + \cos^4 A = 1$$

7. (b) **Statement I:** $A(x) = x^2 - 15x = x(x - 15) = 0$

Roots are $x = 0$ and $x = 15$.

These represent the width and length of the garden.

Statement I is correct.

Statement II:

$$\text{Discriminant} = b^2 - 4ac = (-15)^2 - 4(1)(0) = 225 > 0.$$

This indicates two distinct real roots. Statement II is correct.

Statement III:

Sum of roots = $-b/a = 15$, Perimeter = 60 meters,
Sum of roots \neq Perimeter. $(\because 15 \neq 60)$

Statement III is incorrect.

Therefore, only statements I and II are correct.

8. (b) Let, $\sqrt{6 + \sqrt{6 + \sqrt{6 + \dots}}} = x$

$$\therefore \sqrt{6 + x} = x$$

On squaring both sides, we get

$6 + x = x^2 \Rightarrow x^2 - x - 6 = 0$
 $\Rightarrow (x - 3)(x + 2) = 0 \Rightarrow x = -2, 3$
 Since, x cannot be negative therefore $x = 3$.

9. (c) The given sequence is an A.P. with first term (a) = 4 and common difference (d) = 5.
 Let n^{th} term of an A.P. be = 124
 $\therefore a_n = 124 \Rightarrow a + (n - 1)d = 124$
 $\Rightarrow 4 + (n - 1) \times 5 = 124 \Rightarrow n = 25$
 Therefore, 124 is the 25th term of the given sequence.

10. (c)

Names	No. of Movies Watched
Shailja	3
Nikita	8
Arima	9
Meena	4
Dune	1
Total	25

$$\text{Average} = \frac{\text{Total number of movies watched}}{\text{Number of friends}}$$

$$\Rightarrow \text{Average} = \frac{25}{5} = 5$$

The average number of movies watched by Shreya's friends in the month of June is 5.

11. (b) Given that quadratic equation $2x^2 + kx + 2 = 0$ has equal roots.
 By comparing with the quadratic equation $x^2 + bx + c = 0$, we get $a = 2$, $b = k$ and $c = 2$.
 We know that the quadratic equation $ax^2 + bx + c = 0$ has equal roots, if $b^2 - 4ac = 0$.
 Therefore, $k^2 - 4 \times 2 \times 2 = 0$
 $\Rightarrow k^2 = 4^2 = 16 \Rightarrow k = \pm 4$.

Topper's Explanation

(CBSE 2020)

$$2x^2 + kx + 2 = 0$$

For equal roots;

$$b^2 - 4ac = 0$$

$$k^2 - 16 = 0$$

$$k^2 = 16$$

$$k = \pm 4$$

Ans (B) ± 4

Mistakes 101 : What not to do!

In questions involving quadratic equations, students often make mistakes when looking at the coefficients of x^2 and x .

12. (d) Angle of the regular polygon $= \frac{360^\circ}{5} = 72^\circ$

Therefore, Area of the shaded part

$$= 2 \times \frac{\theta}{360^\circ} \times \pi r^2 = 2 \times \frac{72^\circ}{360^\circ} \times \pi \times (5)^2 = 10\pi \text{ cm}^2$$

13. (c) Multiple of 4 between 10 and 250 are

12, 16, 20, 24, ... 248

$$a = 12, d = 4, a_n = 248$$

$$\text{we know, } a_n = a + (n - 1)d$$

$$\Rightarrow 248 = 12 + (n - 1)4 \Rightarrow 236 = (n - 1)4$$

$$\Rightarrow n = 60$$

14. (a) No. of days in a non-leap year = 365 days

$$365 \text{ days} = 52 \text{ weeks} + 1 \text{ day}$$

For 52 weeks, no. of Sunday = 52

1 remaining day can be Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday.

Total number of possible outcomes = 7, number of favourable outcomes = 1

$$\text{Probability} = \frac{\text{Number of favourable outcomes}}{\text{Total number of possible outcomes}} = \frac{1}{7}$$

15. (d) Given: pair of equation $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$

Comparing pair of equation with $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$, we get

$$\text{Now, } a_1 = 1, a_2 = -3, b_1 = 2, b_2 = -6, c_1 = 5, c_2 = 1$$

$$\frac{a_1}{a_2} = \frac{1}{-3}, \frac{b_1}{b_2} = \frac{1}{-3}, \frac{c_1}{c_2} = \frac{5}{1} \Rightarrow \frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

Hence, no solution.

16. (c) Given, h is the height of both cylinders.

Let R be the radius of 1st cylinder and r be the radius of 2nd cylinder.

$$\frac{(\text{C.S.A.})_1}{(\text{C.S.A.})_2} = \frac{2\pi Rh}{2\pi rh} = \frac{R}{r} = R : r$$

17. (a) Given that;

Height of the pole (AB)

$$= 6 \text{ m}$$

Length of shadow (BC)

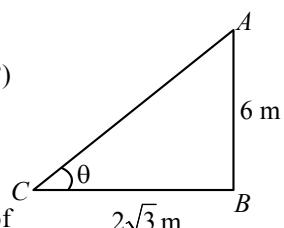
$$= 2\sqrt{3} \text{ m}$$

Let θ be the elevation of the sun

Now, in $\triangle ABC$

$$\tan \theta = \frac{AB}{BC} \Rightarrow \tan \theta = \frac{6}{2\sqrt{3}} = \sqrt{3} = \tan 60^\circ$$

$$\therefore \theta = 60^\circ$$



CBSE Solved Paper 2025

Time allowed : 3 hours

Maximum Marks : 80

GENERAL INSTRUCTIONS:

Read the following instructions carefully and follow them:

- (i) This question paper contains **38** questions. **All** questions are **compulsory**.
- (ii) This question paper is divided into **five** Sections - **A, B, C, D** and **E**.
- (iii) In **Section A**, Question numbers **1** to **18** are multiple choice questions (MCQs) and question numbers **19** and **20** are Assertion-Reason based questions of **1** mark each.
- (iv) In **Section B**, Question numbers **21** to **25** are very short answer (VSA) type questions, carrying **2** marks each.
- (v) In **Section C**, Question numbers **26** to **31** are short answer (SA) type questions, carrying **3** marks each.
- (vi) In **Section D**, Question numbers **32** to **35** are long answer (LA) type questions carrying **5** marks each.
- (vii) In **Section E**, Question numbers **36** to **38** are **case-study based integrated** questions carrying **4** marks each. Internal choice is provided in **2** marks question in each case-study.
- (viii) There is no overall choice. However, an internal choice has been provided in **2** questions in **Section B**, **2** questions in **Section C**, **2** questions in **Section D** and **3** questions of **2** marks in **Section E**.
- (ix) Draw neat diagrams wherever required. Take $\pi = \frac{22}{7}$ wherever required, if not stated.
- (x) Use of calculators is **NOT allowed**.

SECTION-A

This section has **20** Multiple Choice Questions (MCQs) carrying **1** mark each. **$20 \times 1 = 20$**

1. The diameter of a wheel is 63 cm. The distance travelled by the wheel in 100 revolutions is: (Ap)

(a) 99 m (b) 198 m
(c) 63 m (d) 136 m

2. The mean of seven observations is 17. If the mean of the first four observations is 15 and that of the last four observations is 18, then the fourth observation is: (An)

(a) 14 (b) 13
(c) 12 (d) 10

3. The distance of the point (4,0) from x -axis is: (Un)

(a) 4 units (b) 16 units
(c) 0 units (d) $4\sqrt{2}$ units

7. If $\tan 30^\circ = \sqrt{3}$, then $\frac{\theta}{2}$ equals : (Ap)

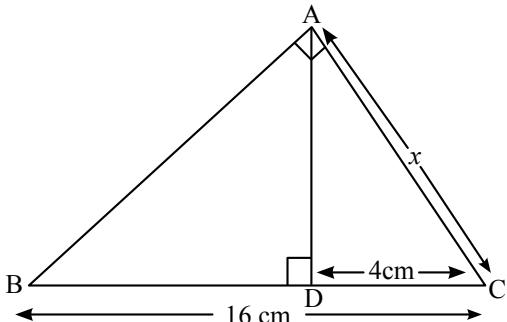
(a) 60° (b) 30°
(c) 20° (d) 10°

8. If in two triangles ΔDEF and ΔPQR , $\angle D = \angle Q$ and $\angle R = \angle E$, then which of the following is **not** true? (An)

(a) $\frac{DE}{QR} = \frac{DF}{PQ}$ (b) $\frac{EF}{PR} = \frac{DF}{PQ}$
(c) $\frac{EF}{RP} = \frac{DE}{QR}$ (d) $\frac{DE}{PQ} = \frac{EF}{RP}$

9. In the given figure, in ΔABC , $AD \perp BC$ and $\angle BAC = 90^\circ$.

If $BC = 16$ cm and $DC = 4$ cm, then the value of x is: (Ev)



(a) 4 cm (b) 5 cm
(c) 8 cm (d) 3 cm

10. Two of the vertices of ΔPQR are $P(-1, 5)$ and $Q(5, 2)$. The coordinates of a point which divides PQ in the ratio 2:1 are: (Ap)

(a) $(3, -3)$ (b) $(5, 5)$
(c) $(3, 3)$ (d) $(5, 1)$

11. $(\cot \theta + \tan \theta)$ equals: (Ap)

(a) $\operatorname{cosec} \theta \sec \theta$ (b) $\sin \theta \sec \theta$
(c) $\cos \theta \tan \theta$ (d) $\sin \theta \cos \theta$

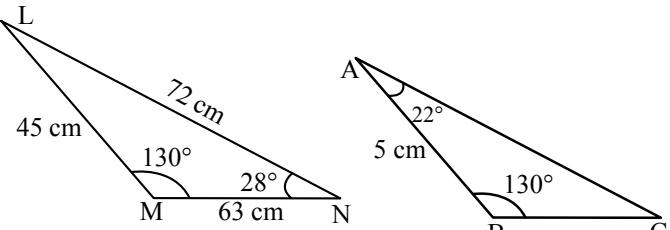
12. Zeroes of the polynomial $p(x) = x^2 - 3\sqrt{2}x + 4$ are: (Ap)

(a) $2, \sqrt{2}$ (b) $2\sqrt{2}, \sqrt{2}$
(c) $4\sqrt{2}, -\sqrt{2}$ (d) $\sqrt{2}, 2$

13. The value of 'k' for which the system of linear equations $6x + y = 3k$ and $36x + 6y = 3$ have infinitely many solutions is: (Ap)

(a) 6 (b) $\frac{1}{6}$
(c) $\frac{1}{2}$ (d) $\frac{1}{3}$

14. The measurements of ΔLMN and ΔABC are shown in the figure given below. The length of side AC is: (An)



(a) 16 cm (b) 7 cm
(c) 8 cm (d) 4 cm

15. The line represented by $\frac{x}{4} + \frac{y}{6} = 1$, intersects x -axis and y -axis respectively at P and Q . The coordinates of the midpoint of line segment PQ are: (Ev)

(a) $(2, 3)$ (b) $(3, 2)$
(c) $(2, 0)$ (d) $(0, 3)$

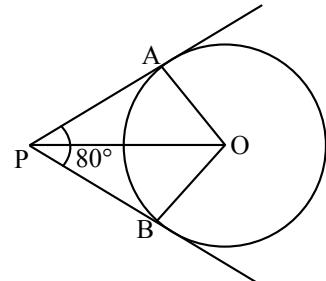
16. If x is the LCM of 4, 6, 8 and y is the LCM of 3, 5, 7 and p is the LCM of x and y , then which of the following is true? (An)

(a) $p = 35x$ (b) $p = 4y$
(c) $p = 8x$ (d) $p = 16y$

17. If $\frac{x}{12} - \frac{3}{x} = 0$, then the values of x are: (Ap)

(a) ± 6 (b) ± 4
(c) ± 12 (d) ± 3

18. If tangents PA and PB drawn from an external point P to the circle with center O are inclined to each other at an angle of 80° as shown in the given figure, then the measure of $\angle POA$ is: (An)



(a) 40° (b) 50°
(c) 60° (d) 80°

Questions number 19 and 20 are Assertion and Reason based questions. Two statements are given, one labelled as Assertion (A) and the other is labelled as Reason (R), Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.

EXPLANATIONS

1. (b) [NCERT Ch-11, Pg -155]

Given, diameter of the wheel = 63 cm

$$\text{Radius of the wheel} = \frac{63}{2} \text{ cm}$$

Number of revolutions = 100

The distance covered in one complete revolution of the wheel is equal to the circumference of the circle:

Circumference = $2\pi r$

$$= 2 \times \frac{22}{7} \times \frac{63}{2} = 22 \times 9 = 198 \text{ cm}$$

Total Distance = Circumference \times Number of Revolutions = $198 \times 100 = 19800 \text{ cm}$

Since 1 m = 100 cm,

We convert the distance into meters:

$$= \frac{19800}{100} = 198 \text{ m} \quad (1 \text{ Mark})$$

2. (b) [NCERT Ch-13, Pg - 171-172]

The mean of seven observations is given as 17, so the total sum of these observations is:

$$17 \times 7 = 119$$

The mean of the first four observations is 15, so their sum is:

$$15 \times 4 = 60$$

The mean of the last four observations is 18, so their sum is:

$$18 \times 4 = 72$$

Fourth observation = (Sum of first four) + (Sum of last four) - (Total sum) = $60 + 72 - 119 = 13$ (1 Mark)

3. (c) [NCERT Ch-7, Pg - 99]

The distance of a point from the x -axis is given by the absolute value of its y -coordinate.

Given point (4, 0)

Here, the y -coordinate is 0, so the distance from the x -axis is: $|0| = 0$ units (1 Mark)

4. (d) [NCERT Ch-2, Pg - 18-20]

The given polynomial is $p(x) = kx^2 - 30x + 45k$ and given α and β are the zeroes of the polynomial

$$\therefore \alpha + \beta = -\frac{-30}{k} = \frac{30}{k}$$

$$\text{and } \alpha\beta = \frac{45k}{k} = 45$$

It is given that $\alpha + \beta = \alpha\beta$

$$\Rightarrow \frac{30}{k} = 45$$

$$\Rightarrow k = \frac{30}{45} = \frac{2}{3}$$

(1 Mark)

5. (d) [NCERT Ch-12, Pg - 167]

The problem states that the radius r of a sphere and the radius of the base of a cone are the same, and their volumes are also equal.

The volume of a sphere is given by: $V_{\text{sphere}} = \frac{4}{3}\pi r^3$

The volume of a cone is given by: $V_{\text{cone}} = \frac{1}{3}\pi r^2 h$

Since the volumes of the sphere and the cone are the same,

$$\therefore \frac{4}{3}\pi r^3 = \frac{1}{3}\pi r^2 h \Rightarrow 4r = h$$

Thus, the height of the cone is $4r$. (1 Mark)

6. (a) [NCERT Ch-14, Pg - 202-203]

Total outcomes = $10 + 30 = 40$

The probability of winning a prize is the ratio of the number of prize-winning tickets to the total number of tickets:

$$P(\text{winning}) = \frac{\text{Number of prizes}}{\text{Total tickets}} = \frac{10}{40} = \frac{1}{4}$$

(1 Mark)

7. (d) [NCERT Ch-8, Pg - 121-125]

The given equation is $\tan 3\theta = \sqrt{3}$

we know that: $\tan 60^\circ = \sqrt{3}$

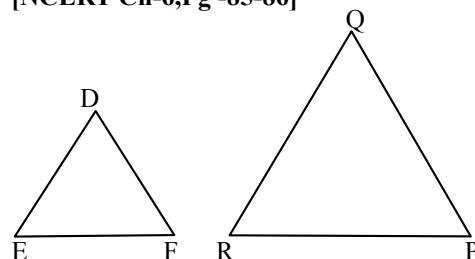
$$\Rightarrow \tan 3\theta = \tan 60^\circ \Rightarrow 3\theta = 60^\circ$$

$$\Rightarrow \theta = \frac{60^\circ}{3} = 20^\circ$$

$$\therefore \frac{\theta}{2} = \frac{20^\circ}{2} = 10^\circ$$

(1 Mark)

8. (d) [NCERT Ch-6, Pg - 85-86]



In $\triangle DEF$ and $\triangle PQR$

$$\angle D = \angle Q, \angle R = \angle E$$

Then by AA similarity of triangle we have,

$$\triangle DEF \sim \triangle PQR$$

$$\frac{DE}{QR} = \frac{EF}{RP} = \frac{DF}{PQ}$$

$$\text{Hence, } \frac{DE}{PQ} \neq \frac{EF}{RP}$$

(1 Mark)

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