First Hope

GET SOLUTIONS

Click here to visit our website

CLASS 12 MATHEMATICS - PRACTICE QUESTIONS

For solutions, download the FirstHope app now.

Scan or click here

Click here to get solutions >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHope_CBSE_Notes

Instagram

@firsthope.school

Click here to follow >

YouTube channel

@firsthope.school

Click here to watch >

FirstHope website

firsthope.co.in

Click here to visit our website >

CBSE / Class 12 / Mathematics

For solutions, download the FirstHope app now.

CLASS 12

Mathematics

Chapterwise PYQs

13 sections | 28 questions | 2022, 2023, 2024, 2025, 2026

CBSE board examination questions

Selected and rewritten questions are grouped under the current chapters or course topics. Each question shows its examination year. A chapter appears only when a verified question is available.

Choose a chapter or topic

Mathematics		
Chapter 1	Relations and Functions	3
Chapter 2	Inverse Trigonometric Functions	1
Chapter 3	Matrices	2
Chapter 4	Determinants	1
Chapter 5	Continuity and Differentiability	3
Chapter 6	Application of Derivatives	3
Chapter 7	Integrals	2
Chapter 8	Application of Integrals	1
Chapter 9	Differential Equations	1
Chapter 10	Vector Algebra	1
Chapter 11	Three Dimensional Geometry	1
Chapter 12	Linear Programming	2
Chapter 13	Probability	7

CHAPTER 1

Relations and Functions

Mathematics

1. 2024

   On {1,2,3,4,5}, define xRy by $|x^2 - y^2| < 8$. Test reflexivity, symmetry and transitivity.

2. 2024

   For f: R → R, f(x)=ax+b, f(1)=1 and f(2)=3. Find f and test whether it is bijective.

3. 2023

   On {5,6,7,8,9}, relate x to y when x − y is even. Prove equivalence and list elements related to 7.

CHAPTER 2

Inverse Trigonometric Functions

Mathematics

4. 2023

   State the real domain of the principal inverse-cosine function.

CHAPTER 3

Matrices

Mathematics

5. 2026

   Use matrices to solve a+s+p=21, 4a+3s+2p=60 and 6a+2s+3p=70, interpreting a,s,p as book prices.

6. 2025

   Allocate 180 students with S=M+D and M=S/2+20. Use matrices to determine the sports, music and drama memberships.

CHAPTER 4

Determinants

Mathematics

7. 2023

For the determinant with rows (2,−3,5), (6,0,4), (1,5,−7), calculate the minor M23.

CHAPTER 5

Continuity and Differentiability

Mathematics

8. 2026

Differentiate x^x with respect to x log x, taking log as natural logarithm and using an appropriate positive-x domain.

9. 2024

Show that $f(x) = |x|^3$ is differentiable throughout its real domain.

10. 2024

Differentiate y = (tan x)^x on an interval where it is real and defined.

CHAPTER 6

Application of Derivatives

Mathematics

11. 2026

A cube's volume grows at a constant rate. Prove that its surface-area growth rate is inversely proportional to edge length.

12. 2025

Find absolute extrema of $f(x)=2x^3 - 15x^2 + 36x + 1$ over [1,5].

13. 2023

A spherical bubble's radius increases at 0.5 cm/s. Find the surface-area rate when its radius is 1.5 cm.

CHAPTER 7

Integrals

Mathematics

14. 2024

Integrate $x^2/[(x^2+4)(x^2+9)]$ with respect to x.

15. 2024

Evaluate the integral from 1 to 3 of $|x-1|+|x-2|+|x-3|$ with respect to x.

CHAPTER 8

Application of Integrals

Mathematics

16. 2022

Use integration to obtain the smaller area cut from $4x^2 + 4y^2 = 9$ by $2x + 2y = 3$.

CHAPTER 9

Differential Equations

Mathematics

17. 2026

Solve $(x - \sin y)dy + \tan y\, dx = 0$.

CHAPTER 10

Vector Algebra

Mathematics

18. 2024

In parallelogram ABCD, vectors AB=(2,−4,5) and DB=(3,−6,2). Find vector AD and the parallelogram's area.

CHAPTER 11

Three Dimensional Geometry

Mathematics

19. 2024

Parallelogram sides are AB: (x+1)/1=(y−2)/(−2)=(z−1)/2; BC: (x−1)/3=(y+2)/(−5)=(z−5)/3; CD: (x−4)/1=(y+7)/(−2)=(z−8)/2; DA: (x−2)/3=(y+3)/(−5)=(z−4)/3. Determine diagonal BD's equation.

CHAPTER 12

Linear Programming

Mathematics

20. 2024

Maximise Z = 5x + 4y graphically, subject to x + 2y ≥ 4, 3x + y ≤ 6, x + y ≤ 4, x,y ≥ 0.

21. 2023

Evaluate Z = 4x + 3y at feasible vertices (0,700), (100,700), (200,600), (400,200), and determine both extrema.

CHAPTER 13

Probability

Mathematics

22. 2026

Roll a fair die. For A={1,2,5} and C={2,3,4,5}, determine P(A|C) and P(C|A).

23. 2025

Two-thirds of applicants are female. Distinction probabilities are 0.35 for females and 0.40 for males. Find the overall distinction probability.

24. 2025

Three loan categories have proportions 0.1, 0.2, 0.7 and default rates 0.05, 0.03, 0.01. Find overall default probability and the probability that a defaulted loan belongs to category three.

25. 2023

A card is drawn from cards numbered 1–10. Given its number exceeds 4, find the probability it is even.

26. 2022

Two fair dice have an even sum. Find the conditional probability that at least one die shows 3.

27. 2022

Two people independently solve a problem with probabilities 2/3 and 3/5. Find the chance at least one succeeds.

28. 2022

Find the chance of at least one head in three fair-coin tosses.

First Hope

First Hope

GET SOLUTIONS

Click here to visit our website

CLASS 12 MATHEMATICS - PRACTICE QUESTIONS

For solutions, download the FirstHope app now.

Scan or click here

Click here to get solutions >

Available on Google Play

JOIN THE FIRSTHOPE COMMUNITY

Join our Telegram channel

Click here to join Telegram >

Scan or click here

@FirstHope_CBSE_Notes

Instagram

@firsthope.school

Click here to follow >

YouTube channel

@firsthope.school

Click here to watch >

FirstHope website

firsthope.co.in

Click here to visit our website >

CBSE / Class 12 / Mathematics

For solutions, download the FirstHope app now.