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CLASS 10

Mathematics Basic

Chapterwise PYQs

14 sections | 38 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

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CHAPTER 1

Real Numbers

Mathematics

1. 2026

   Find the least positive integer leaving remainder 5 when divided by 35, 56 and 84.

2. 2023

   Divide 36 apples and 60 bananas equally among the largest possible number of guests. Find guests and each person's share.

CHAPTER 2

Polynomials

Mathematics

3. 2024

   Find the roots of $6x^2 - 7x - 3$ and verify their coefficient relationships.

4. 2023

   Determine the zeroes of $x^2 + 6x + 8$ and check their sum and product against its coefficients.

CHAPTER 3

Pair of Linear Equations in Two Variables

Mathematics

5. 2025

   Two complementary angles are in ratio 1:2. Form and solve simultaneous equations for them.

6. 2024

   Two incomes are in ratio 9:7 and expenses in ratio 4:3. Each person saves ₹2000 monthly. Find both incomes.

7. 2023

   Find a and b so $3x + 4y = 12$ and $(a + b)x + 2(a - b)y = 24$ have infinitely many solutions.

CHAPTER 4

Quadratic Equations

Mathematics

8. 2025

Find all k giving repeated real roots of $2x^2 + kx + 3 = 0$; determine those roots.

9. 2022

Form a quadratic equation with roots 3 and 5.

CHAPTER 5

Arithmetic Progressions

Mathematics

10. 2026

An AP starts with 5, ends with 95 and totals 2295. Determine the number of terms and common difference.

11. 2026

Monthly savings are ₹200, ₹250, ₹300, ... In which month does the saving reach ₹1000?

12. 2025

Successive semicircle radii are 50, 100, 150, ... cm. Calculate the thirteenth radius.

13. 2023

An AP begins at −5, ends at 45 and sums to 120. Determine its length and common difference.

14. 2022

Use an arithmetic progression to sum the first twelve two-digit multiples of 7.

CHAPTER 6

Triangles

Mathematics

15. 2026

Prove that a line parallel to one triangle side divides the other two sides proportionally.

CHAPTER 7

Coordinate Geometry

Mathematics

16. 2024

Locate the point on the y-axis equidistant from (6, 5) and (−4, 3).

17. 2024

Find both trisection points of the segment joining (5, −3) and (−4, 3).

18. 2023

Find the point dividing the segment from (−1, 7) to (4, −3) internally in ratio 2:3.

CHAPTER 8

Introduction to Trigonometry

Mathematics

19. 2024

Evaluate $\sin^2 30° + \cos^2 45° - \cos 0° \tan 45°$.

CHAPTER 9

Some Applications of Trigonometry

Mathematics

20. 2026

From a ship's deck 12 m above water, a hilltop has elevation 60° and its base depression 30°. Find hill height and horizontal distance.

21. 2025

A ladder reaches a roof 15 m above ground while inclined at 60° to horizontal. Determine its length.

CHAPTER 10

Circles

Mathematics

22. 2026

Two internally touching circles share tangent AP at P. From A, other tangents meet them at Q and R. Show AQ = AR.

23. 2025

Find the length of a chord tangent to the inner of concentric circles with radii 6 cm and 10 cm.

24. 2025

Prove that a rectangle touching a circle on all four sides is a square.

25. 2024

Show that a parallelogram tangent to a circle on all four sides must be a rhombus.

26. 2023

Concentric circles have radii 3 cm and 5 cm. Find the larger circle's chord length when it touches the smaller circle.

27. 2022

Tangents PA and PB to a circle centred at O make angle APB = 70°. Determine angle POA.

CHAPTER 11

Areas Related to Circles

Mathematics

28. 2026

A sector has radius 5.6 cm and perimeter 27.2 cm. Determine its area.

29. 2024

A clock's minute hand is 14 cm long. Calculate its swept area from 8:00 to 8:05.

30. 2023

For radius 7 cm and central angle 90°, calculate the minor and major sector areas.

CHAPTER 12

Surface Areas and Volumes

Mathematics

31. 2025

A cone on a hemisphere has common radius 5 cm and cone height equal to its diameter. Determine the toy's volume.

32. 2024

A cone stands on a hemisphere of common radius 7 cm; total height is 31 cm. Find the exterior surface area.

33. 2022

Recast a sphere of radius 3 cm as a cylinder of radius 2 cm. Determine its height.

34. 2022

A cone is removed from a cylinder with the same 2.4 cm height and 1.4 cm diameter. Find the remaining total surface area.

CHAPTER 13

Statistics

Mathematics

35. 2022

Find the mode for classes 0–20, 20–40, 40–60, 60–80, 80–100 with frequencies 8, 7, 12, 5, 3.

36. 2026

A store has 8 mango, 5 litchi, 3 apple and 2 banana juice cartons. Find the chance a random carton is mango.

37. 2025

Of 200 pens, 180 work properly. A customer rejects a randomly offered defective pen. Find the rejection probability.

38. 2023

Toss a fair coin twice. Find probabilities of at least one head, exactly one tail, and at most one head.

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