MAHARASHTRA BOARD · CLASS 10 · MATHS PART 1 ALGEBRA

Maharashtra Board Class 10 Maths Part 1 Algebra Important Questions 2027

41 question patterns that repeated across past papers · the years show every time each was asked

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Linear Equations in Two Variables

1. Solve a pair of simultaneous linear equations

Asked 5× · Board 2023, Board 2024, Board 2025, Board 2026 · 2 marks

Solve the following simultaneous equations: 5x + 3y = 9; 2x - 3y = 12.

2. Solve simultaneous equations using Cramer's rule

Asked 5× · Board 2023, Board 2024, Board 2025, Board 2026 · 3 marks

Solve the following simultaneous equations by Cramer's rule: x + 2y = -1; 2x - 3y = 12.

3. Complete a table of values for drawing the graph of a linear equation

Asked 4× · Board 2024, Board 2025, Board 2026 · 2 marks

Complete the following table to draw the graph of the equation x - y = 1 (find missing x, y and (x, y) values).

4. Find the value of one variable in a linear equation in two variables given the o

Asked 4× · Board 2022, Board 2023, Board 2024, Board 2026 · 1 marks

To draw the graph of 4x + 5y = 19, find the value of y when x = 1. (A) 4 (B) 3 (C) 2 (D) -3

5. Find a linear combination of variables from a pair of simultaneous equations

Asked 3× · Board 2024, Board 2025, Board 2026 · 1 marks

If 15x + 17y = 21 and 17x + 15y = 11, then find the value of x + y.

6. Evaluate a 2x2 determinant

Asked 3× · Board 2023, Board 2024, Board 2025 · 1 marks

The value of the determinant |5 3; -7 -4| is ____ (A) -1 (B) -41 (C) 41 (D) 1

7. Find the value of a variable using Cramer's rule given D, Dx, Dy

Asked 3× · Board 2022, Board 2024, Board 2025 · 1 marks

For simultaneous equations in variables x and y, Dx = 49, Dy = -63, D = 7, then find the value of x.

8. Solve a word problem reducing to simultaneous linear equations

Asked 2× · Board 2025, Board 2026 · 3/4 marks

Two numbers differ by 3. The sum of twice the smaller number and thrice the greater number is 19. Find the numbers.

9. Find linear combinations of variables from a pair of simultaneous equations

Asked 2× · Board 2022, Board 2025 · 2 marks

Find the values of (x + y) and (x - y) of the following simultaneous equations: 101x + 99y = 501; 99x + 101y = 499.

10. Solve a pair of simultaneous equations graphically

Asked 2× · Board 2022, Board 2025 · 3 marks

Solve the following simultaneous equations graphically: x + y = 6, x - y = 4.

11. Draw the graph of a linear equation and find the area of the triangle formed wit

Asked 2× · Board 2023, Board 2024 · 3 marks

Draw the graph of the equation x + y = 4 and answer: (a) Which type of triangle is formed by the line with the X and Y-axes based on its sides ? (b) Find the area of that triangle.

Quadratic Equations

12. Solve a quadratic equation by factorisation

Asked 6× · Board 2022, Board 2024, Board 2025, Board 2026 · 2 marks

Solve the following quadratic equation by factorisation method: $25m^2 = 9$.

13. Solve a quadratic equation by the formula method

Asked 6× · Board 2022, Board 2023, Board 2024, Board 2025, Board 2026 · 3 marks

Solve the following quadratic equation by formula method: $x^2 - 3x - 2 = 0$.

14. Find the value of an unknown coefficient given that a value is a root of the qua

Asked 5× · Board 2022, Board 2024, Board 2026 · 1/2/3 marks

One of the roots of the equation $x^2 + mx - 5 = 0$ is 2, find the value of m. (a) -2 (b) -1/2 (c) 1/2 (d) 2

15. Form a quadratic equation given its two roots

Asked 3× · Board 2024, Board 2025, Board 2026 · 2 marks

Form the quadratic equation whose roots are 3 and -10.

16. Identify which of the given equations is not a quadratic equation

Asked 3× · Board 2023, Board 2025, Board 2026 · 1 marks

Out of the following equations which one is not a quadratic equation ? (A) $x^2 + 4x = 11 + x^2$ (B) $x^2 = 4x$ (C) $5x^2 = 90$ (D) $2x - x^2 = x^2 + 5$

17. Identify which of the given equations is a quadratic equation

Asked 3× · Board 2022, Board 2024, Board 2025 · 1 marks

From the following equations which one is the quadratic equation ? (A) $x/5 - 3 = x^2$ (B) $x(x+5) = 2$ (C) $n-1 = 2n$ (D) $(1/x^2)(x+2) = x$

18. Write a quadratic equation in standard form

Asked 2× · Board 2025, Board 2026 · 1 marks

Write the following quadratic equation in the form $ax^2 + bx + c = 0$: $2y = 10 - y^2$.

19. Find consecutive numbers given the sum of their squares (quadratic word problem)

Asked 2× · Board 2023, Board 2026 · 4 marks

The sum of the squares of five consecutive natural numbers is 1455. Find the numbers.

20. Complete an activity to determine the nature of roots of a quadratic equation us

Asked 2× · Board 2023, Board 2024 · 2 marks

Complete the activity to determine the nature of roots of the quadratic equation $m^2 + 2m + 9 = 0$ by computing $b^2 - 4ac$.

Arithmetic Progression

21. Find the nth term of a given A.P.
Asked 4× · Board 2024, Board 2025, Board 2026 · 2 marks
Given A.P. is 12, 16, 20, 24, ... Find the 24th term of this progression.

22. Find the first term and common difference of a given A.P.
Asked 2× · Board 2024, Board 2026 · 1 marks
Find the first term and common difference of the given A.P. 5, 1, -3, -7, ...

23. Find a specific term of an A.P. given its nth-term formula
Asked 2× · Board 2024, Board 2025 · 1 marks
Find the first term of the given sequence: tn = 3n - 4.

24. Find the nth term of an A.P. given first term and common difference
Asked 2× · Board 2023, Board 2025 · 1 marks
For a given A.P. a = 3.5, d = 0, then t2 = ____ (A) 0 (B) 3.5 (C) 7 (D) 10.5

25. Find the common difference of a given A.P.
Asked 2× · Board 2023, Board 2025 · 1 marks
Find the common difference of the following A.P.: 4, 4, 4, ... (A) 1 (B) 8 (C) 4 (D) 0

26. Prove a formula for the sum of terms of an A.P. given first, second and last ter
Asked 2× · Board 2023, Board 2025 · 3/4 marks
If the first term of an A.P. is 'p', second term is 'q' and last term is 'r', then show that the sum of all terms is (p + r)(q + r - 2p) / 2(q - p).

Financial Planning

27. Complete a table of FV, MV and market position (par/premium/discount) for shares
Asked 2× · Board 2023, Board 2026 · 2 marks
Complete the following table by writing suitable numbers and words for shares (FV, Share is at Par/Premium/Discount, MV).

28. Find the market value of a share given face value and premium
Asked 2× · Board 2024, Board 2025 · 1 marks
Face value of one share is `100 and premium is `10. Find the market value of the share.

29. Find the number of shares purchased given total investment, FV and premium
Asked 2× · Board 2024, Board 2025 · 2 marks
Pushpmala has invested `24,000 and purchased shares of FV `20 at a premium of `4. Complete the activity to find the number of shares she purchased.

30. Find the amount received after selling a share given MV and brokerage rate
Asked 2× · Board 2024, Board 2025 · 2/3 marks
A share is sold for the market value of `2,000. Brokerage is paid at the rate of 0.5%. What is the amount received after the sale ?

31. Recall a factual detail about GST/GSTIN format
Asked 2× · Board 2024, Board 2025 · 1 marks
How many alpha numerals are there in the format of GSTIN ?

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32. Find the rate of GST given taxable value and CGST/SGST amounts

Asked 2× · Board 2023, Board 2025 · 2 marks

Courier service agent charged total `590 to courier a parcel; taxable value is `500 on which CGST is `45 and SGST is `45. Complete the activity to find the rate of GST charged for this service.

Probability

33. Write the sample space for a given random experiment

Asked 5× · Board 2022, Board 2023, Board 2024, Board 2025, Board 2026 · 1 marks

When two coins are tossed simultaneously, write the sample space 'S'.

34. Identify which value cannot represent a probability

Asked 4× · Board 2022, Board 2024, Board 2025 · 1 marks

From the following numbers which number cannot represent a probability ? (A) 0.6 (B) 2.0 (C) 0.15 (D) 0.75

35. Complete an activity to find the probability of an event when a die is rolled

Asked 3× · Board 2022, Board 2024, Board 2026 · 2/3 marks

If one die is rolled, complete the activity to find the probability of the event that the number on the upper face is prime.

36. Find the probability of events when a number is formed from given digits

Asked 2× · Board 2023, Board 2026 · 3 marks

A two digit number is formed using digits 2, 3, 5, 7, 9 without repetition. What is the probability that the number formed is (a) an odd number (b) a multiple of 5 ?

37. Find the probability of drawing specified cards from a pack of 52 cards

Asked 2× · Board 2022, Board 2025 · 3 marks

A card is drawn from a well shuffled pack of 52 playing cards. Complete the activity to find the probability that the card is (a) a red card (b) a face card.

Statistics

38. Find the median of given grouped frequency data

Asked 4× · Board 2023, Board 2025, Board 2026 · 3/4 marks

The table shows the funds collected by 105 students for flood affected people (classes 10-20 ... 70-80). Find the median of the data.

39. Draw a histogram for given grouped data

Asked 3× · Board 2024, Board 2025, Board 2026 · 3 marks

Draw a histogram of the following data: Height of Students (cm) 135-140, 140-145, 145-150, 150-155 with number of students 4, 12, 16, 8.

40. Draw a frequency polygon for given grouped data

Asked 2× · Board 2023, Board 2026 · 4 marks

The table shows the classification of percentages of marks of students and the number of students (30-40 ... 90-100). Draw a frequency polygon from the table.

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41. Find the mean of grouped data by the assumed-mean method

Asked 2× · Board 2023, Board 2024 · 2/3 marks

In the following table, the toll (in Rs.) paid from 6 am to 6 pm by drivers and the number of vehicles is shown (classes 300-400 ... 700-800). Find the mean of the toll by 'assumed mean' method.

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