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CLASS 10 MATHEMATICS BASIC - PRACTICE QUESTIONS

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CLASS 10

Mathematics Basic

Sample Paper 4 - Questions

38 questions | 80 marks | 2026-27

Time: 3 hours. Answer all questions and subparts unless a choice is stated. Marks are shown on the right. Write answers on separate sheets. Independently prepared practice paper.

Section A - Objective questions

1. Calculate the smaller root of $x^2 - 61x + 928 = 0$. **1**
(A) 28 (B) 29 (C) 31 (D) 30

2. Solve $x + y = 69$ and $2x - y = 33$. State the value of x. **1**
(A) 33 (B) 34 (C) 36 (D) 35

3. A sector has central angle 90 degrees and radius 60 cm. Calculate its area as a coefficient of pi. **1**
(A) 902 (B) 900 (C) 901 (D) 899

4. Calculate the sum of the first 39 terms of the AP beginning 33, 36, 39. **1**
(A) 3511 (B) 3512 (C) 3510 (D) 3509

5. Calculate the distance between A(31, 33) and B(127, 161). **1**
(A) 160 (B) 162 (C) 159 (D) 161

6. Calculate the mean of 33, 35, 37, 39, 41. **1**
(A) 37 (B) 39 (C) 38 (D) 36

7. Factorise $x^2 + 34x + 64$. State the positive integer c such that $(x + 32)(x + c)$ is the factorisation. **1**
(A) 4 (B) 1 (C) 2 (D) 3

8. Tangents PA and PB are drawn from P to a circle. PA = 103 cm. Calculate PB. **1**

(A) 104 (B) 103 (C) 102 (D) 105

9. For an acute angle theta, tan theta = 87/116. Calculate sin theta. **1**

(A) 8/5 (B) -2/5 (C) 13/5 (D) 3/5

10. Calculate the HCF of 336 and 504. **1**

(A) 169 (B) 167 (C) 168 (D) 170

11. A cylinder has radius 7 cm and height 29 cm. Calculate its volume using pi = 22/7. **1**

(A) 4466 (B) 4467 (C) 4465 (D) 4468

12. A fair die is rolled. Calculate the probability that its result is at most 5. **1**

(A) 17/6 (B) 5/6 (C) -1/6 (D) 11/6

13. Two similar triangles have corresponding-side ratio 2:29. If the smaller area is 20 square centimetres, find the larger area. **1**

(A) 4206 (B) 4207 (C) 4205 (D) 4204

14. Calculate the smaller root of $x^2 - 59x + 868 = 0$. **1**

(A) 27 (B) 28 (C) 30 (D) 29

15. Solve x + y = 65 and 2x - y = 31. State the value of x. **1**

(A) 33 (B) 32 (C) 31 (D) 34

16. An AP has first term 30 and common difference 3. Calculate its 36th term. **1**

(A) 137 (B) 136 (C) 135 (D) 134

17. A sector has central angle 90 degrees and radius 56 cm. Calculate its area as a coefficient of pi. **1**

(A) 784 (B) 786 (C) 785 (D) 783

18. Calculate the distance between A(26, 28) and B(107, 136). **1**

(A) 136 (B) 137 (C) 134 (D) 135

19. Factorise $x^2 + 31x + 58$. State the positive integer c such that $(x + 29)(x + c)$ is the factorisation. 1
(A) 3 (B) 2 (C) 4 (D) 1

20. Calculate the HCF of 396 and 594. 1
(A) 199 (B) 200 (C) 198 (D) 197

Section B - Short responses

21. A cylinder has radius 7 cm and height 32 cm. Calculate its volume using pi = 22/7. 2

22. Calculate the mean of 29, 31, 33, 35, 37. 2

23. For an acute angle theta, tan theta = 90/120. Calculate sin theta. 2

24. A fair die is rolled. Calculate the probability that its result is at most 3. 2

25. Tangents PA and PB are drawn from P to a circle. PA = 97 cm. Calculate PB. 2

Section C - Short responses

26. Two similar triangles have corresponding-side ratio 2:30. If the smaller area is 20 square centimetres, find the larger area. Show the governing rule, substitution and conclusion clearly. 3

27. Solve x + y = 61 and 2x - y = 29. Calculate both x and y and check your answer in each equation. 3

28. Calculate the sum of the first 34 terms of the AP beginning 28, 32, 36. Show the governing rule, substitution and conclusion clearly. 3

29. Calculate the distance between A(32, 34) and B(131, 166). Determine the midpoint of AB and explain how the coordinate differences are used. 3

30. Calculate the mean of 31, 33, 35, 37, 39. State the median and range, explaining how you identify each. 3

31. Solve $x^2-69x+1188=0$ by factorisation. Verify the sum and product of your roots. 3

Section D - Extended responses

32. Calculate the 20th term and the sum of the first 20 terms of the AP 5, 8, 11, ... 5

33. From a point 20 m from the base of a vertical tower on level ground, its top has angle of elevation 60 degrees. Calculate the tower's height. Then find the angle from a point 20sqrt(3) m from its base. 5

34. Calculate the point dividing the segment from A(2, 3) to B(8, 11) internally in the ratio AP:PB = 1:3. Also find AB. 5

35. Tangents PA and PB touch a circle at A and B. Prove PA = PB using the centre O. 5

Section E - Case and application questions

36. A rectangular garden has width x m, length (x+3) m and area 70 m^2.

(a) Form its quadratic equation. 1

(b) Find the positive root. 1

(c) State the dimensions and perimeter. 2

37. Five observations are [6, 8, 10, 12, 14].

(a) Find their sum. 1

(b) Find their mean. 1

(c) Find their median and range, explaining each. 2

38. A bag holds 8 red and 9 blue counters. One is drawn at random.

(a) State the total number. **1**

(b) Find the probability of red. **1**

(c) Find the probability of not red and explain your method. **2**

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