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CLASS 10 MATHEMATICS BASIC - PRACTICE QUESTIONS

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CLASS 10

# Mathematics Basic

Sample Paper 2 - 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.** An AP has first term 3 and common difference 3. Calculate its 9th term. **1**
(A) 27 (B) 29 (C) 28 (D) 26

**2.** Calculate the distance between A(1, 3) and B(7, 11). **1**
(A) 9 (B) 11 (C) 10 (D) 12

**3.** Solve x + y = 7 and 2x - y = 2. State the value of x. **1**
(A) 3 (B) 5 (C) 4 (D) 2

**4.** Factorise $x^2$ + 6x + 9. State the positive integer c such that (x + 3)(x + c) is the factorisation. **1**
(A) 2 (B) 3 (C) 4 (D) 5

**5.** A cylinder has radius 7 cm and height 4 cm. Calculate its volume using pi = 22/7. **1**
(A) 616 (B) 615 (C) 618 (D) 617

**6.** Calculate the mean of 2, 4, 6, 8, 10. **1**
(A) 7 (B) 6 (C) 5 (D) 8

**7.** A fair die is rolled. Calculate the probability that its result is at most 2. **1**
(A) 1/3 (B) 7/3 (C) -2/3 (D) 4/3

**8.** Calculate the HCF of 24 and 36. **1**
(A) 13 (B) 12 (C) 11 (D) 14

**9.** Calculate the smaller root of $x^2 - 7x + 10 = 0$. 1

(A) 2 (B) 1 (C) 3 (D) 4

**10.** Two similar triangles have corresponding-side ratio 2:4. If the smaller area is 20 square centimetres, find the larger area. 1

(A) 80 (B) 82 (C) 79 (D) 81

**11.** For an acute angle theta, tan theta = 6/8. Calculate sin theta. 1

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

**12.** Tangents PA and PB are drawn from P to a circle. PA = 10 cm. Calculate PB. 1

(A) 11 (B) 12 (C) 10 (D) 9

**13.** A sector has central angle 90 degrees and radius 4 cm. Calculate its area as a coefficient of pi. 1

(A) 3 (B) 5 (C) 4 (D) 6

**14.** Calculate the sum of the first 9 terms of the AP beginning 3, 6, 9. 1

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

**15.** Calculate the distance between A(2, 4) and B(11, 16). 1

(A) 17 (B) 14 (C) 15 (D) 16

**16.** Solve x + y = 9 and 2x - y = 3. State the value of x. 1

(A) 6 (B) 4 (C) 5 (D) 3

**17.** Factorise $x^2 + 8x + 16$. State the positive integer c such that (x + 4)(x + c) is the factorisation. 1

(A) 4 (B) 6 (C) 5 (D) 3

**18.** A cylinder has radius 7 cm and height 5 cm. Calculate its volume using pi = 22/7. 1

(A) 770 (B) 769 (C) 771 (D) 772

**19.** Calculate the mean of 3, 5, 7, 9, 11. 1

(A) 9 (B) 6 (C) 7 (D) 8

**20.** A fair die is rolled. Calculate the probability that its result is at most 3. 1

(A) 3/2 (B) -1/2 (C) 1/2 (D) 5/2

## Section B - Short responses

**21.** Calculate the HCF of 36 and 54. **2**

**22.** Calculate the smaller root of $x^2 - 9x + 18 = 0$. **2**

**23.** Two similar triangles have corresponding-side ratio 2:5. If the smaller area is 20 square centimetres, find the larger area. **2**

**24.** For an acute angle theta, tan theta = 9/12. Calculate sin theta. **2**

**25.** Tangents PA and PB are drawn from P to a circle. PA = 13 cm. Calculate PB. **2**

## Section C - Short responses

**26.** A sector has central angle 90 degrees and radius 6 cm. Calculate its area as a coefficient of pi. **3**

**27.** An AP has first term 4 and common difference 4. Calculate its 10th term. **3**

**28.** Calculate the distance between A(3, 5) and B(15, 21). **3**

**29.** Solve x + y = 11 and 2x - y = 4. State the value of x. **3**

**30.** Factorise $x^2 + 7x + 10$. State the positive integer c such that (x + 5)(x + c) is the factorisation. **3**

**31.** A cylinder has radius 7 cm and height 6 cm. Calculate its volume using pi = 22/7. **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.** 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**

**34.** 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**

**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 small hall has 6 seats in its first row and 3 more seats in each following row. There are 11 rows.

(a) How many seats are in the second row? **1**

(b) Find the number of seats in the last row. **1**

(c) Find the hall's total seating capacity. **2**

**37.** A plan places A(0,0), B(6,0) and C(6,8) on a square grid, in metres.

(a) Find AB. **1**

(b) Find the midpoint of AC. **1**

(c) Verify using lengths that ABC is right-angled. **2**

**38.** A probability game uses a bag containing 5 red and 6 blue counters. A counter is selected uniformly.

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

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

(c) After a red counter is removed without replacement, find the probability that the next selected counter is blue. Explain the denominator. **2**

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