

Mathematics — Ganita Manjari
Sample Question Paper 3
Class IX | 2026-27

Time Allowed: 3 Hours

Maximum Marks: 80

General Instructions

1. This question paper contains 38 questions. All questions are compulsory.
2. The question paper is divided into five sections A, B, C, D and E.
3. Section A has 18 MCQs and 2 assertion–reason questions of 1 mark each.
4. Section B has Questions 21 to 25 of 2 marks each.
5. Section C has Questions 26 to 31 of 3 marks each.
6. Section D has Questions 32 to 35 of 5 marks each.
7. Section E has Questions 36 to 38, case studies of 4 marks each, with subparts of 1, 1 and 2 marks.
8. There is no overall choice. Internal choice is provided in two questions each in Sections B, C and D, and in the 2-mark subpart of each case study in Section E.
9. Draw neat figures wherever required. Use $\pi = 22/7$ unless another value is stated.
10. Use of calculators is not allowed.

SECTION A

(20 questions $\times$ 1 mark = 20 marks)

1. Let ABCD be a quadrilateral. List all sides of ABCD adjacent to side AB. List all sides opposite to AB.

(A) Adjacent: AC, BD; opposite: CD

(B) Adjacent: BC, CD; opposite: AD

(C) Adjacent: AD, BC; opposite: CD

(D) Adjacent: AD, CD; opposite: BC

2. The probability of an impossible event is _____.

(A) -1

(B) 0

(C) 1

(D) $\frac{1}{2}$

3. In a T20 match, a team scored 6 runs in the first over. In the second over they scored 12 runs. What is the run rate now?

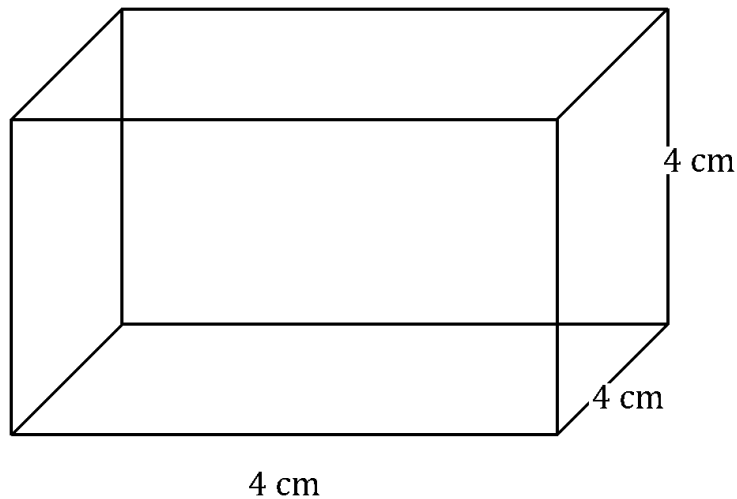
(A) 11

(B) 8

(C) 9

(D) 10

4. A cube of side 4 cm is cut into cubes of side 1 cm. What is the ratio of the surface areas of the original cube and all the cut-out cubes?



- (A) 1 : 4 (B) 1 : 16
(C) 4 : 1 (D) 1 : 64
5. Give a formula to find the x-intercept of the line $y = mx + c$, where $m \neq 0$.
(A) $\frac{c}{m}$ (B) $-\frac{m}{c}$
(C) mc (D) $-\frac{c}{m}$

6. Compute $\gcd(99, 2)$ using the improved version of Euclid's algorithm.
(A) 4 (B) 1
(C) 5 (D) 3

7. Justify why the plane cannot be tiled with a regular pentagon.
(A) It has no diagonals (B) Its angles total 360°
(C) Its sides cannot be equal (D) 108° does not divide 360°

8. Find the value of 205^2 using a suitable identity.
(A) 42027 (B) 42025
(C) 42026 (D) 42024

9. If $x - y = 6$ and $xy = 4$, find $x^2 + y^2$.
(A) 46 (B) 44
(C) 36 (D) 42

10. For real numbers x and y : if $x = y$, then $x^2 = y^2$. Is the converse true?
(A) Yes for all real x and y (B) Yes only because squares are positive
(C) No; $x = 1, y = -1$ is a counterexample (D) No; $x = y = 1$ is a counterexample

11. Find the value of the linear polynomial $5x - 3$ if $x = 0$.

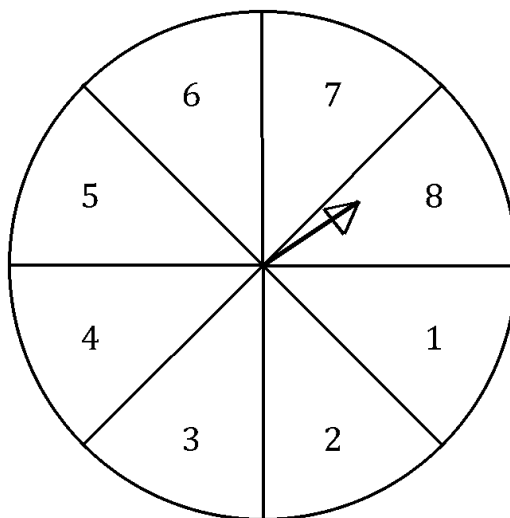
(A) -3

(B) -1

(C) -4

(D) -2

12. A game of chance consists of spinning an arrow, which comes to rest pointing at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8, and these are equally likely outcomes. What is the probability that it will point at an odd number?



(A) $\frac{3}{8}$

(B) $\frac{1}{8}$

(C) $\frac{1}{2}$

(D) $\frac{5}{8}$

13. Find the 80th triangular number.

(A) 3242

(B) 3241

(C) 3240

(D) 3239

14. The number $0.99999\dots$ is exactly equal to _____.

(A) 0.999

(B) 0.99

(C) 0.9

(D) 1

15. Factor completely: $64p^2 + 32pq + 4q^2$.

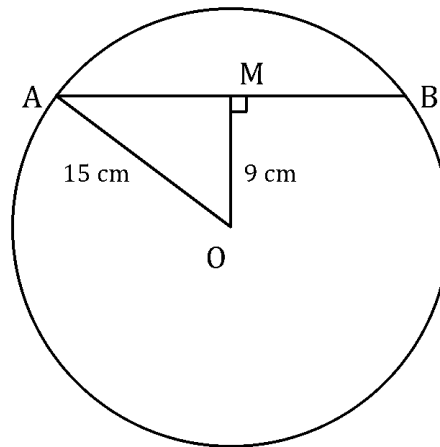
(A) $(8p + 4q)^2$

(B) $4(4p + q)^2$

(C) $4(4p - q)^2$

(D) $4(2p + q)^2$

16. A circle has a radius of 15 cm. A chord is drawn. The distance from the centre of the circle to the chord is 9 cm. What is the length of the chord?



- (A) 18 cm
(C) 30 cm

- (B) 24 cm
(D) 12 cm

17. If n is divisible by 24, then it is divisible by both 4 and 6. Is the converse true?

- (A) No; $n = 24$ is a counterexample
(C) Yes; $4 \times 6 = 24$
- (B) No; $n = 12$ is a counterexample
(D) Yes for every positive integer n

18. In a circle, a chord is 5 cm away from the centre. If the radius of the circle is 13 cm, what is the length of the chord?

- (A) 10 cm
(C) 24 cm
- (B) 12 cm
(D) 26 cm

For Questions 19 and 20, choose the correct option:

- (A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.

19. Assertion (A): The point $(5, 13)$ lies on the line $y = 2x + 3$.

Reason (R): A point lies on a line when its coordinates satisfy the equation of the line.

20. Assertion (A): The positive integer 25 has an odd number of positive divisors.

Reason (R): In a perfect square, divisors pair to give the number, with its positive square root paired with itself.

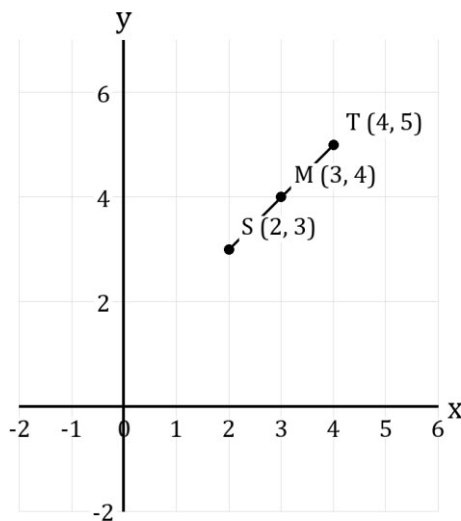
SECTION B

(5 questions $\times$ 2 marks = 10 marks)

21. Convert $\frac{3}{50}$ into a terminating decimal or a non-terminating repeating decimal by the process of long division.

22. Find the 31st term of an AP whose 11th term is 38 and 16th term is 73.

23. State whether M is the midpoint of segment ST. Justify your answer.
S (2, 3), M (3, 4), T (4, 5).



24. (A) Execute the algorithm to compute the divisors of 15.

OR

(B) Find the area of a quadrant of a circle whose circumference is 66 cm.

25. (A) A farmer cuts a 300 feet fence into two pieces of different sizes. The longer piece is four times as long as the shorter piece. How long are the two pieces?

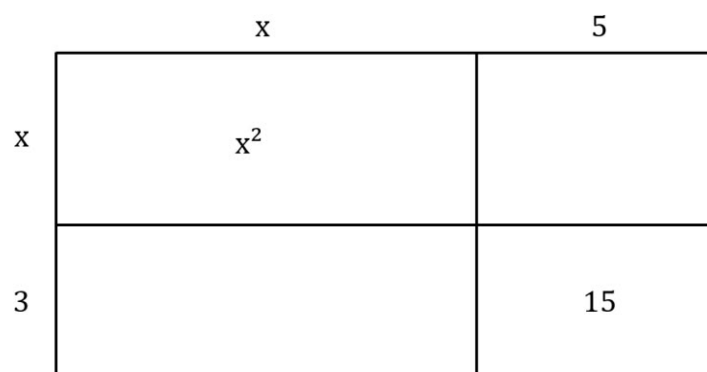
OR

(B) What would a system of coordinates be like if we did not have negative numbers? Would this system allow us to locate all the points on a 2-D plane?

SECTION C

(6 questions $\times$ 3 marks = 18 marks)

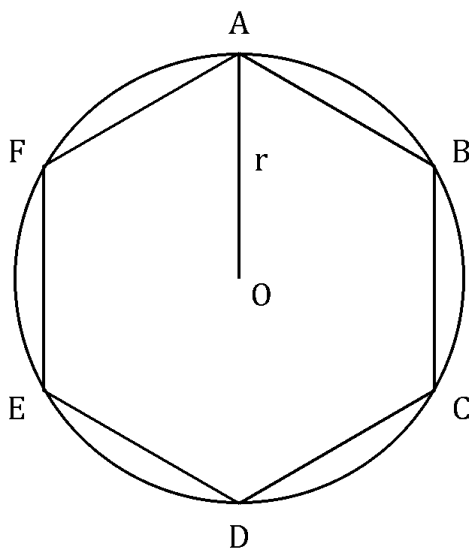
26. Saira has arranged a square of side x units, 8 rectangular strips of sides x units and width 1 unit, and 15 squares of side 1 unit to form a bigger rectangle. Find the length and breadth of the rectangle in terms of x.



27. Compute $\gcd(1789287, 237656)$ using the improved version of Euclid's algorithm.

28. Shreyas holds 25 shares of a company at an average price of ₹150 and Vaishnavi holds 5 shares of the same company at an average price of ₹150. (i) Shreyas buys 10 shares at ₹30 each. What is his new average price per share? (ii) Vaishnavi buys some shares at ₹30 each and her new average is ₹70. How many shares did she buy?

29. (A) A regular hexagon is inscribed in a circle of radius r . Find the length of the sides of the hexagon and the distance of each side from the centre of the circle.



OR

(B) A pool 30 hastas long is dug to different depths along its length. It is divided into 5 sections having lengths 4, 5, 6, 7, and 8 hastas, and is dug to depths of 9, 7, 7, 3, and 2 hastas, respectively. Find the mean depth of the pool.

30. A tyre company records distances before replacement in 1000 cases: less than 4000 km: 20; 4001–9000 km: 210; 9001–14000 km: 325; more than 14000 km: 445. Find the probability that a randomly chosen tyre lasts (i) less than 4000 km, (ii) between 4000 and 14000 km, (iii) more than 14000 km.

31. (A) The sum of the 4th and 8th terms of an AP is 24 and the sum of the 6th and 10th terms is 44. Find the first three terms of the AP.

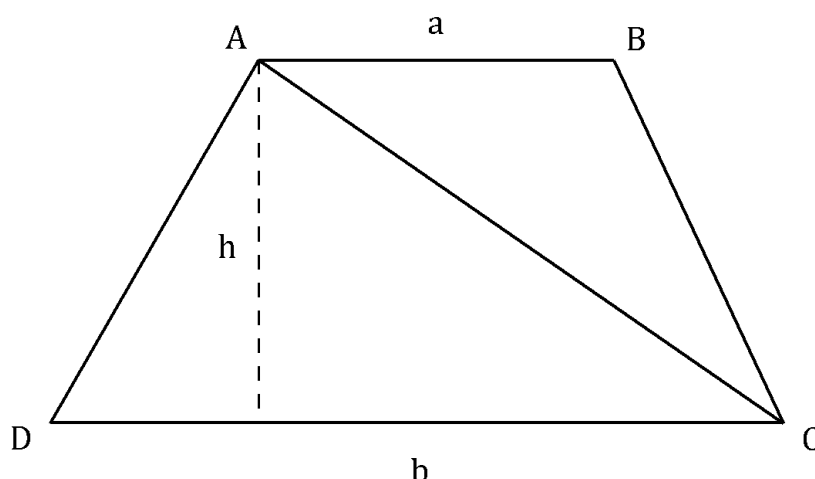
OR

(B) The sides of a triangle have lengths 7 cm, 24 cm, 25 cm. Find the area of the triangle in two different ways.

SECTION D

(4 questions $\times$ 5 marks = 20 marks)

32. (A) By dividing a trapezium into two triangles show that its area is half the sum of the parallel sides multiplied by the height.



OR

(B) A person is choosing between two mobile plans. Plan A: ₹50 monthly fee + ₹0.20 per minute of call time. Plan B: ₹30 monthly fee + ₹0.30 per minute of call time. For how many minutes of calling per month is Plan A cheaper than Plan B? For how many minutes is Plan B cheaper? Also find the number of minutes at which both plans cost the same.

33. (A) Suppose the Earth is perfectly spherical. A string is wrapped tightly around its equator. Another string, 1 metre longer, forms a larger circle, staying the same distance above the ground everywhere. How high above the ground is the second string? Repeat this for (i) the Moon (ii) Jupiter (iii) a volleyball. Are you surprised by the three answers? Why or why not?

OR

(B) Suppose the midpoints of sides AB, BC, CD and DA of a quadrilateral ABCD are P, Q, R and S respectively. (i) Show that PR and QS bisect each other. (ii) Show that if $AC = BD$, then PR and QS are perpendicular. Is the converse true?

34. Five years ago, Nuri was thrice as old as Sonu. Ten years later, Nuri will be twice as old as Sonu. How old are Nuri and Sonu?

35. Let $p(x) = ax + b$ and $q(x) = cx + d$ be two linear polynomials such that (i) the graph of $p(x)$ passes through the points (2, 3) and (6, 11), (ii) the graph of $q(x)$ passes through the point (4, -1), (iii) the graph of $q(x)$ is parallel to the graph of $p(x)$. Find $p(x)$ and $q(x)$. Also find the coordinates of the points where these lines meet the x-axis.

SECTION E

(3 questions $\times$ 4 marks = 12 marks)

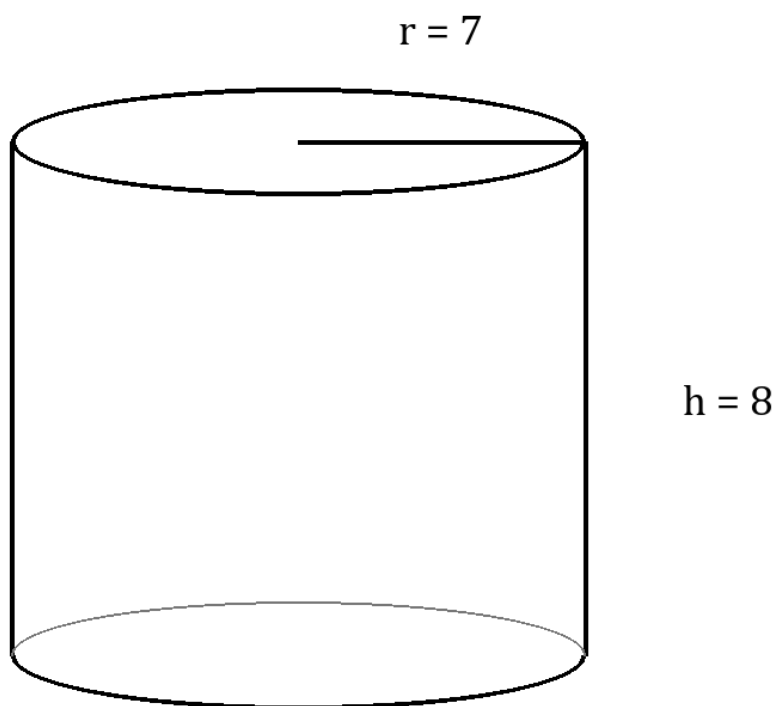
36. Tiwari Academy organises a reading challenge. A student reads 6 pages on the first day and 5 more pages on each successive day. Assume the pattern continues for at least ten days.

- (i) State the common difference.
- (ii) How many pages are read on Day 4?
- (iii) (A) Find the pages read on Day 10 and how many more this is than on Day 4.

OR

- (iii) (B) Write explicit and recursive formulae for the number of pages read on Day n .

37. A craft group makes a closed cylindrical storage box. In figure, its radius is 7 cm and its height is 8 cm. Give answers in terms of π .

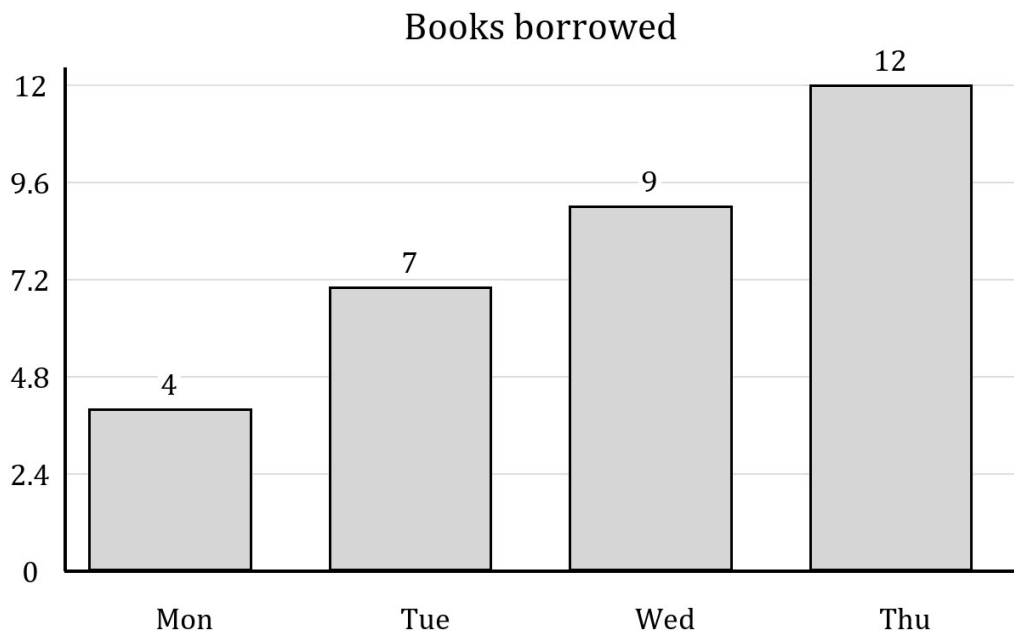


- (i) Find the base diameter.
- (ii) Find the area of one circular base.
- (iii) (A) Find the curved surface area and the total surface area.

OR

- (iii) (B) Find the volume. If the height is doubled and the radius is unchanged, find the new volume.

38. The bar chart shows the numbers of books borrowed from a classroom library on four days. Each book is counted once on the day it is borrowed.



- (i) Which day has the greatest number of books borrowed?
- (ii) Find the total number borrowed in the four days.
- (iii) (A) Calculate the mean daily number of books borrowed.

OR

- (iii) (B) On Friday, 13 books are borrowed. Find the new mean for all five days.