

Class IX Session 2025-26

Subject - Mathematics

Sample Question Paper - 1

Time Allowed: 3 hours

Maximum Marks: 80

General Instructions:

Read the following instructions carefully and follow them:

1. This question paper contains 38 questions.
2. This Question Paper is divided into 5 Sections A, B, C, D and E.
3. In Section A, Questions no. 1-18 are multiple choice questions (MCQs) and questions no. 19 and 20 are Assertion-Reason based questions of 1 mark each.
4. In Section B, Questions no. 21-25 are very short answer (VSA) type questions, carrying 02 marks each.
5. In Section C, Questions no. 26-31 are short answer (SA) type questions, carrying 03 marks each.
6. In Section D, Questions no. 32-35 are long answer (LA) type questions, carrying 05 marks each.
7. In Section E, Questions no. 36-38 are case study-based questions carrying 4 marks each with sub-parts of the values of 1, 1 and 2 marks each respectively.
8. All Questions are compulsory. However, an internal choice in 2 Questions of Section B, 2 Questions of Section C and 2 Questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
9. Draw neat and clean figures wherever required.
10. Take $\pi = \frac{22}{7}$ wherever required if not stated.
11. Use of calculators is not allowed.

Section A

1. Point $(0, -7)$ lies [1]
 - a) in the fourth quadrant
 - b) on the y-axis
 - c) on the x-axis
 - d) in the second quadrant
2. The sides of a triangle are 50 cm, 78 cm and 112 cm. The smallest altitude is [1]
 - a) 20 cm
 - b) 40 cm
 - c) 30 cm
 - d) 50 cm
3. For what value of x in the figure, points A, B, C and D are concyclic? [1]

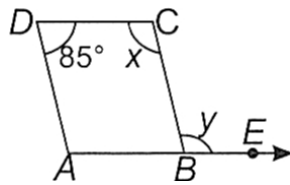


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10. ABCD is a parallelogram in which $\angle ADC = 85^\circ$ and side AB is produced to point E as shown in the figure. Find the value of $(x + y)$. **[1]**



- a) 85°
c) 190°
- b) 95°
d) 160°

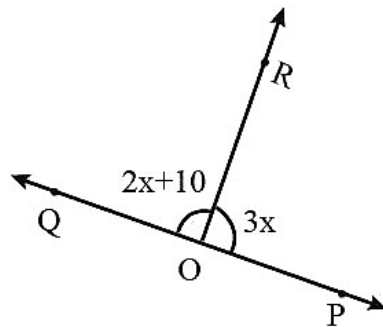
11. The simplest form of $0.12\overline{3}$ is **[1]**

- a) none of these
- b) $\frac{41}{333}$
- c) $\frac{41}{330}$
- d) $\frac{37}{330}$

12. The graph of the line $y = -6$ passes through **[1]**

- a) (-1, 4)
- b) (0, 4)
- c) (4, -6)
- d) (-6, 4)

13. Given $\angle POR = 3x$ and $\angle QOR = 2x + 10^\circ$. If $\angle POQ$ is a straight line, then the value of x is **[1]**

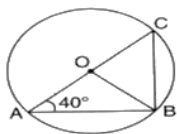


- a) 36°
c) 30°

14. An irrational number between 2 and 2.5 is **[1]**

- a) $\sqrt{22.5}$
c) $\sqrt{5}$

15. If $\angle OAB = 40^\circ$, then the measure of $\angle ACB$ is **[1]**



- a) 50°
c) 40°

16. The point whose abscissa is 4 and this point lies on the x-axis is: **[1]**

- a) $(0, 4)$
c) $(4, 4)$
- b) $(4, 0)$
d) $(2, 4)$

17. The positive solutions of the equation $ax + by + c = 0$ always lie in the **[1]**

- a) 1st quadrant b) 2nd quadrant
c) 3rd quadrant d) 4th quadrant

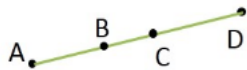
18. If $x + y + z = 9$ and $xy + yz + zx = 23$, then the value of $x^3 + y^3 + z^3 - 3xyz$ is [1]
a) 108 b) 180
c) 209 d) 144

19. **Assertion (A):** If the diagonals of a parallelogram ABCD are equal, then $\angle ABC = 90^\circ$ [1]
Reason (R): If the diagonals of a parallelogram are equal, it becomes a rectangle.
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.

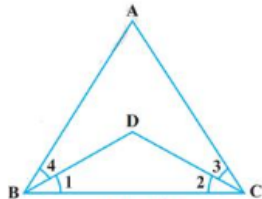
20. **Assertion (A):** Rational number lying between two rational numbers a and b is $\frac{a+b}{2}$. [1]
Reason (R): There is one rational number lying between any two rational numbers.
a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

Section B

21. In fig., if $AC = BD$, then prove that $AB = CD$ [2]



22. In the given figure, we have $\angle ABC = \angle ACB, \angle 4 = \angle 3$. Show that $\angle 1 = \angle 2$. [2]



23. Which of the following points lie on the x-axis? [2]
i. A (0,8)
ii. B (4,0)
iii. C (0,-3)
iv. D (-6,0)
v. E (2,1)
vi. F (-2, -1)
vii. G (-1, 0)
viii. H (0, -2)

24. Express 0.9999 ... as a fraction in simplest form. [2]

OR

Simplify: $\frac{2+\sqrt{3}}{2-\sqrt{3}} + \frac{2-\sqrt{3}}{2+\sqrt{3}} + \frac{\sqrt{3}-1}{\sqrt{3}+1}$.

25. A military tent is in the form of a right circular cone 21 dm in height, the diameter of the base being 4 m. If 6 men sleep in it, find the average number of cubic decimetres of air surface per man. [2]

OR

A cloth having an area of 165 m^2 is shaped into the form of a conical tent of radius 5 m. How many students can sit in the tent if a student, on an average, occupies $\frac{5}{7} \text{ m}^2$ on the ground?

Section C

26. Locate $\sqrt{3}$ on the number line. [3]
27. The following data shows the average age of men in various countries in a certain year: [3]

Country	India	Nepal	China	Pakistan	U.K.	U.S.A.
Average age (in years)	55	52	60	50	70	75

Represent the above information by a bar graph.

28. P and Q are the mid-points of the opposite sides AB and CD of a parallelogram ABCD. AQ intersects DP at S and BQ intersects CP at R. Show that PRQS is a parallelogram. [3]
29. Draw the graph of the following linear equation in two variables : $x - y = 2$ [3]
30. The monthly profits (in Rs) of 100 shops are distributed as follows: [3]

Profits per shop:	0-50	50-100	100-50	150-200	200-250	250-300
No. of shops:	12	18	27	20	17	6

Draw a histogram for the data and show the frequency polygon for it.

OR

The following data gives the production of foodgrains (in thousand tonnes) for some years:

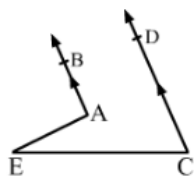
Year	1995	1996	1997	1998	1999	2000
Production (in thousand tonnes)	120	150	140	180	170	190

Represent the above data with the help of a bar graph.

31. Find m and n if $x - 1$ and $x - 2$ exactly divide the polynomial $x^3 + mx^2 - nx + 10$ [3]

Section D

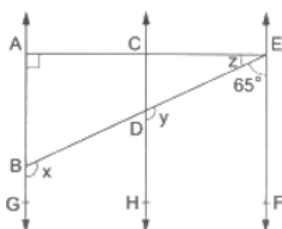
32. In the given figure, $AB \parallel CD$. Prove that $\angle BAE - \angle DCE = \angle AEC$. [5]



OR

In the given figure, $AB \parallel CD \parallel EF$, $\angle DBG = x$, $\angle EDH = y$, $\angle AEB = z$, $\angle EAB = 90^\circ$ and $\angle BEF = 65^\circ$.

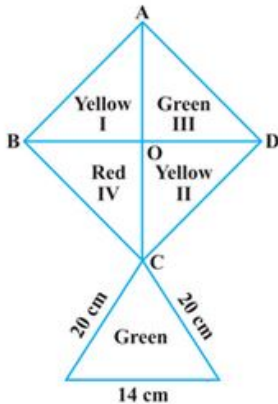
Find the values of x, y and z.



33. Shanti sweets stall was placing an order for making cardboard boxes for packing their sweets two sizes of boxes [5]

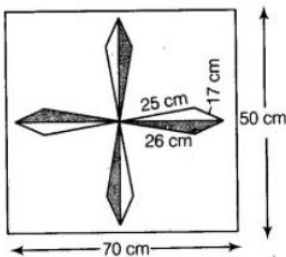
were required. The bigger of dimensions $25\text{cm} \times 20\text{cm} \times 5\text{cm}$ and the smaller of dimensions $15\text{cm} \times 12\text{cm} \times 5\text{cm}$ for all the overlaps, 5% of the total surface area is required extra. If the cost of cardboard is ₹ 4 for 1000 cm^2 . Find the cost of cardboard required for supplying 250 boxes of each kind.

34. How much paper of each shade is needed to make a kite given in Figure, in which ABCD is a square with diagonal 44 cm? [5]



OR

A design is made on a rectangular tile of dimensions $50\text{ cm} \times 70\text{ cm}$ as shown in Figure. The design shows 8 triangles, each of sides 26 cm, 17 cm and 25 cm. Find the total area of the design and the remaining area of the tile.



35. Find the integral roots of the polynomial $f(x) = x^3 + 6x^2 + 11x + 6$. [5]

Section E

36. Read the following text carefully and answer the questions that follow: [4]

Reeta was studying in the class 9th C of St. Surya Public school, Mehrauli, New Delhi-110030

Once Ranjeet and his daughter Reeta were returning after attending teachers' parent meeting at Reeta's school.

As the home of Ranjeet was close to the school so they were coming by walking.

Reeta asked her father, "Daddy how old are you?"

Ranjeet said, "Sum of ages of both of us is 55 years, After 10 years my age will be double of you."



- What is the second equation formed? (1)
- What is the present age of Reeta in years? (1)

iii. What is the present age of Ranjeet in years? (2)

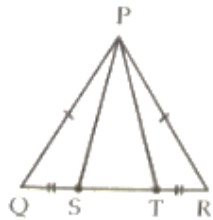
OR

If the ratio of age of Reeta and her mother is 3 : 7 then what is the age of Reeta's mother in years? (2)

37. **Read the following text carefully and answer the questions that follow:**

[4]

A children's park is in the shape of isosceles triangle said PQR with $PQ = PR$, S and T are points on QR such that $QT = RS$.



i. Which rule is applied to prove that congruency of $\triangle PQS$ and $\triangle PRT$. (1)

ii. Name the type of $\triangle PST$. (1)

iii. If $PQ = 6$ cm and $QR = 7$ cm, then find perimeter of $\triangle PQR$. (2)

OR

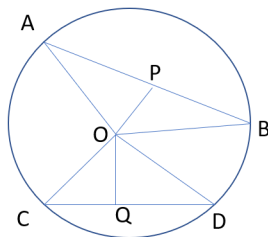
If $\angle QPR = 80^\circ$ find $\angle PQR$? (2)

38. **Read the following text carefully and answer the questions that follow:**

[4]

Rohan draws a circle of radius 10 cm with the help of a compass and scale. He also draws two chords, AB and CD in such a way that the perpendicular distance from the center to AB and CD are 6 cm and 8 cm respectively.

Now, he has some doubts that are given below.



i. Show that the perpendicular drawn from the Centre of a circle to a chord bisects the chord. (1)

ii. What is the length of CD? (1)

iii. What is the length of AB? (2)

OR

How many circles can be drawn from given three noncollinear points? (2)