



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

ANNUAL EXAMINATION (2026) MATHEMATICS (041) - SET-1

Class: IX
Date: 20-02-2026
Adm No: _____

Duration: 3 Hrs
Max. Marks: 80
Roll number: _____

General Instructions:

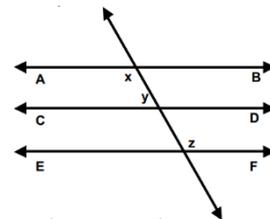
- 1 This question paper has 5 sections A, B, C, D and E.
- 2 Section A has 18 MCQs carrying 1 mark each. There are two AS Qs carrying 1 mark each.
- 3 Section B has 5 questions carrying 2 marks each.
- 4 Section C has 6 questions carrying 3 marks each.
- 5 Section D has 4 questions carrying 5 marks each
- 6 Section E has 3 case based integrated units of assessment (04 marks each) with subparts of the values 1, 1 and 2 marks each respectively.
- 7 All questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2Qs of 3 marks and 2 Qs of 2 marks has been provided. An internal choice has been provided in the 2 marks questions of Section E.
- 8 Draw neat figures wherever required. Take $\pi = \frac{22}{7}$ / 3.14 wherever required if not stated.

SECTION – A

1. Which of the following is not an irrational number?
(A) $\sqrt{16}$ (B) $\sqrt{9}$ (C) $\sqrt{12}$ (D) $\sqrt{100}$
2. $3\sqrt{6} + 4\sqrt{6}$ is equal to:
(A) $6\sqrt{6}$ (B) $7\sqrt{6}$ (C) $4\sqrt{12}$ (D) $7\sqrt{12}$
3. What is the degree of the polynomial $\sqrt[3]{3}$?
(A) 0 (B) 1 (C) $\frac{1}{2}$ (D) 2
4. Points (1, 2), (-2, -3), (2, -3);
(A) First quadrant (B) Do not lie in the same quadrant (C) Third quadrant (D) Fourth quadrant
5. The solution of equation $x-2y = 4$ is:
(A) (0,2) (B) (2, 0) (C) (4, 0) (D) (1, 1)
6. There are ----- number of Euclid's Postulates.
(A) Three (B) Four (C) Five (D) Six

7. In the figure $AB \parallel CD$ and $CD \parallel EF$ and $y : z = 3 : 7$, then the value of x is

- (A) 126° (B) 120° (C) 58° (D) 62°



8. In triangle ABC, if $AB = BC$ and $\angle B = 70^\circ$, $\angle A$ will be:

- (A) 35° (B) 70° (C) 110° (D) 55°

9. If AD is an altitude of an isosceles triangle ABC in which $AB = AC$. Then:

- (A) $BD = CD$ (B) $BD > CD$ (C) $BD < CD$ (D) None of the above

10. Three angles of a quadrilateral are 70° , 95° and 105° . The fourth angle is:

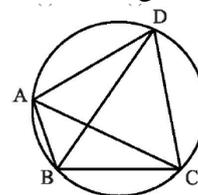
- (A) 90° (B) 95° (C) 105° (D) 120°

11. The consecutive angles of a parallelogram are

- (A) Complementary (B) Supplementary (C) Equal (D) None of these

12. In below figure, ABCD is a cyclic quadrilateral in which AC and BD are its diagonals. If $\angle DBC = 55^\circ$ and $\angle BAC = 45^\circ$, find $\angle BCD$.

- (A) 80° (B) 60°
(C) 90° (D) 100°



13. The perimeter of an equilateral triangle is 60 m. The area is

- (A) $10\sqrt{3} \text{ m}^2$ (B) $15\sqrt{3} \text{ m}^2$ (C) $20\sqrt{3} \text{ m}^2$ (D) $100\sqrt{3} \text{ m}^2$

14. The sides of a triangle are 3 cm, 5 cm and 6 cm. What is its area?

- (A) $2\sqrt{3} \text{ cm}^2$ (B) $2\sqrt{14} \text{ cm}^2$ (C) $5\sqrt{12} \text{ cm}^2$ (D) $2\sqrt{5} \text{ cm}^2$

15. The radius of a sphere is $2r$, then its volume will be:

- (A) $\frac{4}{3} \pi r^3$ (B) $\frac{8}{3} \pi r^3$ (C) $4\pi r^3$ (D) $\frac{32}{3} \pi r^3$

16. If a right circular cone has radius 4 cm and slant height 5 cm then its volume is:

- (A) 16π (B) 14π (C) 12π (D) 18π

17. The mean of the data 2, 3, 4, 5, 0, 1, 3, 3, 4, 3 is

- (A) 2 (B) 2.2 (C) 2.4 (D) 2.8

18. Class mark of class 90-120 is

- (A) 210 (B) 110 (C) 155 (D) None of these

Assertion and Reasoning questions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true and 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:** In $\triangle ABC$, $BC = AB$ and $\angle B = 80^\circ$. Then $\angle A = 50^\circ$

Reason: In a triangle, angles opposite to two equal sides are equal

20 **Assertion:** Two opposite angles of a parallelogram are $(3x - 2)^\circ$ and $(3x - 2)^\circ$ then measure of one of the angle is 37°

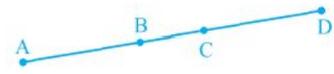
Reason: Opposite angles of parallelogram are equal.

SECTION – B

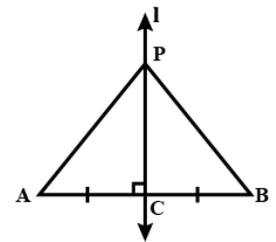
21. Factorise the polynomial (splitting middle term): $2x^2 + 7x + 3$.

22. Find the value of k, if $x = 8$ and $y = 3$ is a solution of $2x + 3y = k$

23. if $AC = BD$, then prove that $AB = CD$

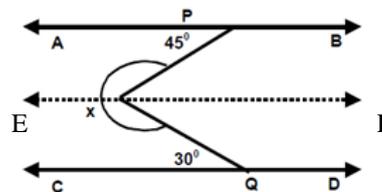


24. AB is a line segment and line l is its perpendicular bisector. If a point P lies on l , Show that P is equidistant from A and B.



OR

Find the value of x, from the following figure,
 $AB \parallel EF \parallel CD$



25. Find the volume of a sphere of radius 7 cm.

OR

Find the total surface area of cone, if its slant height is 12 m and diameter of its base is 24 m.

SECTION – C

26. Rationalise the denominator and simplify: i) $\frac{1}{7+3\sqrt{2}}$ ii) Simplify: $(3 + \sqrt{3})(3 - \sqrt{3})$

27. Find SIX solution of $3x + y = 7$

OR

If $x = k^2$ and $y = k$ is a solution of the equation $x - 5y + 6 = 0$ Find the value of k.

28. i) Expand using identities: $(3a - 7b - c)^2$

ii) Factorise: $8a^3 + b^3 + 12a^2b + 6ab^2$

29. Plot these points on graph paper: A (-2, 4), B (-2, -3), C (4, -3), D (4, 4)

Join AB, BC, CD and DA. Name the so obtained figure.

30. Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

OR

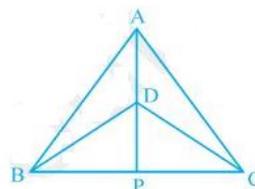
A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.

- 31 In a city, the weekly observation made in a study on cost of living index as given below. Construct a frequency polygon for the following data.

Cost of living index	140-150	150-160	160-170	170-180	180-190	190-200
Number of weeks	5	10	20	9	6	2

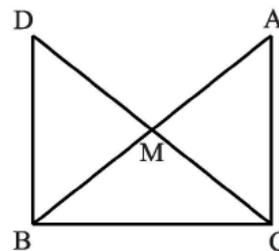
SECTION – D

32. $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC . If AD is extended to intersect BC at P , show that
 (i) $\triangle ABD \cong \triangle ACD$
 (ii) $\triangle ABP \cong \triangle ACP$ (iii) AP bisects $\angle A$ as well as $\angle D$.



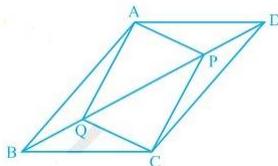
OR

In right triangle ABC , right angled at C , M is the mid-point of hypotenuse AB . C is joined to M and produced to a point D such that $DM = CM$. Point D is joined to point B (refer the figure). Show that
 (i) $\triangle AMC \cong \triangle BMD$ (ii) $\angle DBC = 90^\circ$
 (iii) $\triangle DBC \cong \triangle ACB$ (iv) $CM = \frac{1}{2}AB$



33. In parallelogram $ABCD$, two points P and Q are taken on diagonal BD such that $DP = BQ$. Show that:

i) $\triangle APD \cong \triangle CQB$, ii) $AP = CQ$, iii) $\triangle AQB \cong \triangle CPD$, iv) $AQ = CP$



34. Find the cost of levelling a ground in the form of a triangle with sides 16 m, 12 m and 20 m at Rs. 4 per sq. Meter.
35. The surface area of a sphere of radius 5 cm is five times the area of curved surface area of Cone of radius 4 cm. Find the height and volume of the Cone.

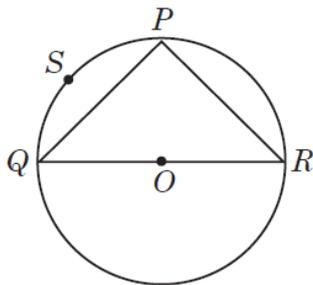
OR

Twenty Seven solid iron spheres, each of radius r and surface area S are melted to form a sphere a sphere with surface area S' . Find the i) radius r 'of new sphere ii) ratio of S and S'

SECTION – E

36. Ankit visited in a mall with his father. He sees that three shops are situated at P , Q , R as shown in the figure from where they have to purchase things according to their need. Distance between

shop P and Q is 8 m, that of between shop Q and R is 10 m and between shop P and R is 6 m.

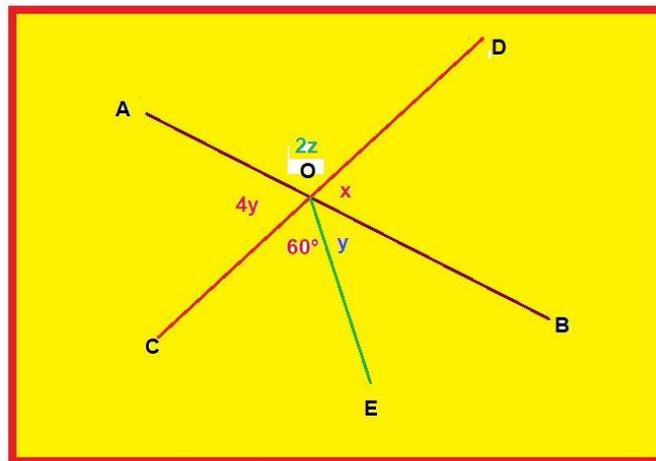


Considering O as the centre of the circle, answer the following questions.

- | | |
|---|---|
| i) Find the radius of the circle. | 1 |
| ii) Measure of $\angle QPR$ is | 1 |
| iii) What is the semi perimeter of ΔPQR . | 2 |

Find the area of ΔPQR is 2

37 Maths teacher draws a straight line AB shown on the blackboard as per the following figure.



Now he told Raju to draw another line CD as in the figure

The teacher told Ajay to mark $\angle AOD$ as $2z$

Suraj was told to mark $\angle AOC$ as $4y$

Clive Made and angle $\angle COE = 60^\circ$

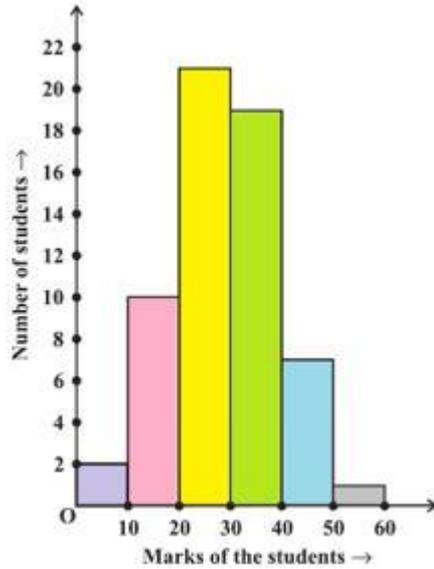
Peter marked $\angle BOE$ and $\angle BOD$ as y and x respectively

Now answer the following questions:

- | | |
|--|---|
| 1. What is the value of y ? | |
| OR | 2 |
| What is the value of x ? | |
| 2. Find the value of z ? | 1 |
| 3. What should be the value of $x + z$? | 1 |

38 . Anil is a Mathematics teacher in Pune. After Periodic test 3, he asks students to collect the Mathematics marks of all the students of Class IX- A, B and C. A student is able to collect marks from some students. Rani scored least mark 6 in the class and Ram scored highest marks 59 in the class. He prepares the frequency distribution table using the collected marks and draws

Histogram using the table as shown in adjoining figure.



- | | |
|---|---|
| 1) What is the width of the class? | 1 |
| 2) What is the total number of students in Histogram? | 1 |
| 3) How many students scored 50% and above marks? | 2 |
| OR | |
| How many students scored less than 50% marks? | 2 |

*****ALL THE BEST*****