

BUDHA DAL PUBLIC SCHOOL PATIALA

FINAL EXAMINATION (13 March 2026)

Class - IX

Paper-Mathematics (Set-A)

Time: 3hrs.

M.M. 80

General Instructions:

1. This Question Paper has 5 Sections A, B, C, D and E.
2. Section A has 20 MCQs carrying 1 mark each
3. Section B has 5 questions carrying 02 marks each.
4. Section C has 6 questions carrying 03 marks each.
5. Section D has 4 questions carrying 05 marks each.
6. Section E has 3 case based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.

Section-A

1. Every rational number is

- a) a natural number b) an integer c) a real number d) a whole number

2. Which of the following is irrational?

- a) $\sqrt{\frac{4}{9}}$ b) $\frac{\sqrt{12}}{\sqrt{3}}$ c) $\sqrt{7}$ d) $\sqrt{81}$

3. $\sqrt{2}$ is a polynomial of degree

- a) 2 b) 0 c) 1 d) $\frac{1}{2}$

4. The point which lie on the line $y - axis$ at a distance of 5 unit in the positive direction of y -axis is

- a) (0, 5) b) (5, 0) c) (0, -5) d) (-5, 0)

5. Point (-2, 7) lies

- a) on x -axis b) in the II quadrant c) on y -axis d) in the IV quadrant

If $x = 2, y = 5$ is a solution of the equation $7x - y = k$, then value of k is

- a) 33 b) 9 c) 19 d) 3

Any point on the line $y = -x$ is of the form

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

The things which are double of the same thing are

- a) equal b) unequal c) halves of the same thing d) none

A



9. There are an infinite number of lines which pass through two distinct points

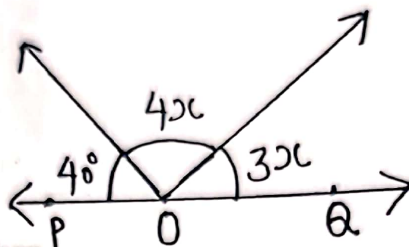
- a) True b) False

10. If one angle of a triangle is equal to the sum of the other two angles, then the triangle is

- a) An isosceles triangle b) an obtuse triangle c) an equilateral triangle d) a right triangle

11. In figure, POQ is a line. The value of x is

- a) 20°
b) 25°
c) 30°
d) 35°



12. If $AB = QR$, $BC = PR$ and $CA = PQ$, then

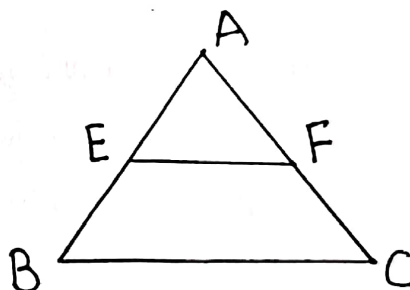
- a) $\triangle ABC \cong \triangle PQR$
b) $\triangle CBA \cong \triangle PRQ$
c) $\triangle BAC \cong \triangle RPQ$
d) $\triangle PQR \cong \triangle BCA$

13. In $\triangle ABC$, $AB = AC$ and $\angle B = 50^\circ$, then $\angle C$ is equal to

- a) 40° b) 50° c) 80° d) 130°

14. In figure line segment EF is parallel to BC where E and F are mid points then

- a) $2 BC = EF$
b) $2 EF = BC$
c) $EF = \frac{1}{3} BC$
d) $BC = EF$

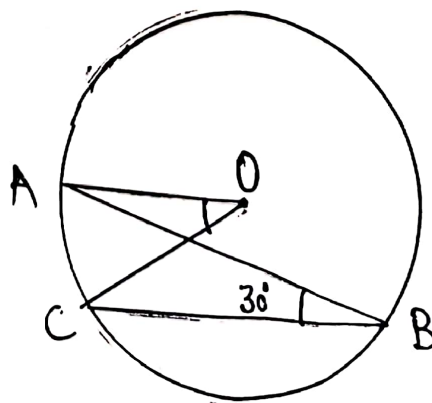


15. ABCD is a rhombus such that $\angle ACB = 40^\circ$ then $\angle ADB$ is

- a) 40° b) 45° c) 50° d) 60°

16. If figure $\angle ABC = 30^\circ$, then $\angle AOC$ is equal to

- a) 20°
b) 40°
c) 60°
d) 15°

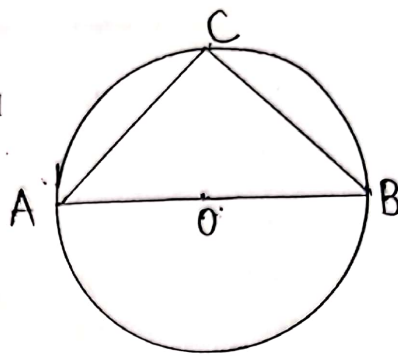


A

17. In figure AOB is a diameter of the circle and

$AC = BC$, then $\angle CAB$ is equal to

- a) 30°
- b) 60°
- c) 90°
- d) 45°



18. If a, b, c are the sides of a triangle, then semi-perimeter ' s ' in Heron's formula can be found using the formula

- a) $\frac{a+b+c}{3}$
- b) $\frac{a-b-c}{3}$
- c) $\frac{a+b+c}{2}$
- d) $\frac{a-b-c}{2}$

Direction: In the question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R).

- a) Both A and R are true and Reason (R) is correct explanation of A
- b) Both A and R are true but Reason (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 radius of a sphere is $2r$, then its volume will be $\frac{8\pi r^3}{3}$

Reason (R) : Volume of sphere with radius r is $\frac{4}{3}\pi r^3$

20. Assertion (A) : In a cone if its radius is 42m and height 10m, then its curved surface area is 2640 m^2

Reason (R): Curved surface area of cone is $\pi r l$

Section - B

21. Represent $\sqrt{2}$ on the number line using compass and ruler.

22. If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2}AB$.

Explain by drawing the figure.

23. Find area of an equilateral triangle with perimeter 12cm.

24. Factorize $8x^3 + y^3 + 12x^2y + 6xy^2$

OR

Factorize $2x^2 + 6x - 20$

25. a) Find class mark and width of the class interval (90 - 120)

b) In a frequency distribution, the mid-point of a class is 10 and the width of the class is 6, then find its lower limit.

Section - C

26. Express $0.6 + 0.\bar{7} + 0.4\bar{7}$ in the form of $\frac{p}{q}$ where p and q are integers and $q \neq 0$

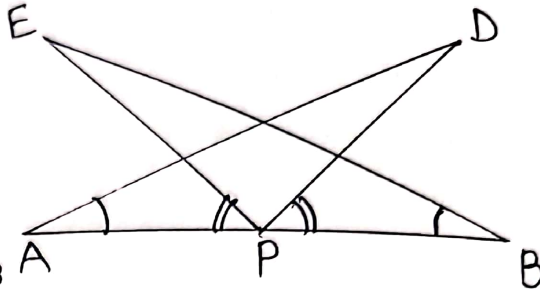
27. AB is a line segment and P is its mid-point.

D and E are points on the same side of AB such that $\angle BAD = \angle ABE$ and $\angle EPA = \angle DPB$.

Show that

a) $\triangle DAP \cong \triangle EBP$

b) $AD = BE$



28. Find three different solutions for $3x + 6y = 18$

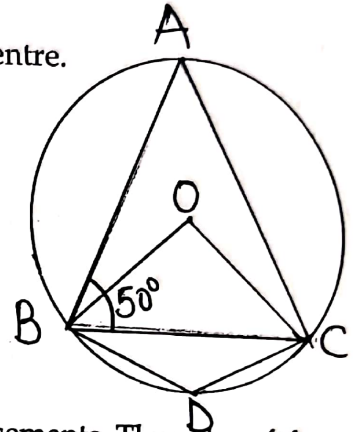
29. Prove that equal chords of a circle subtend equal angles at the centre.

OR

In the given figure, O is the centre of the circle

and $BA = AC$. If $\angle ABC = 50^\circ$ then

find $\angle BOC$ and $\angle BDC$



30. The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 13m, 14m, 15m. The advertisements yield an earning of Rs. 2000 per m^2 a year. A company hired one of its wall for 6 months. How much rent did it pay?

31. The volume of a right circular cone is 9856 cm^3 . If the diameter of the base is 28 cm, then find

a) Height of the cone

b) Slant height of the cone

c) Curved surface area of the cone ($\pi = \frac{22}{7}$)

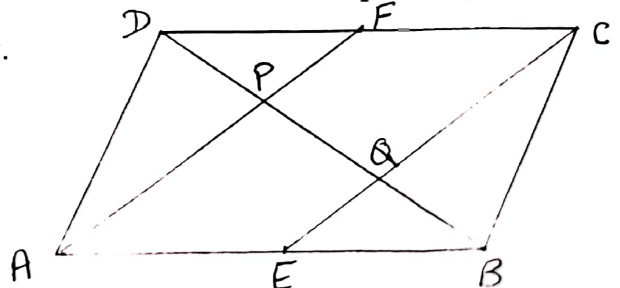
Section - D

32. a) Find the values of a and b if

$$\frac{5 + \sqrt{7}}{5 - \sqrt{7}} = a + b\sqrt{7}$$

b) Simplify $\{8(27^{1/3} + 125^{1/3})^3\}^{1/4}$

33. In a parallelogram ABCD, E and F are the mid-points of sides AB and CD respectively. Show that line segment AF and CE trisects the diagonal BD.



A-4

OR

Show that if the diagonals of a quadrilateral bisect each other at right angles then it is a rhombus.

34. Evaluate by using suitable identity :

a) $(3a + 2b)^3$ b) Expand $(4x + 2y - 3z)^2$

35. The following table gives the distribution of students of two sections according to the marks obtained by them.

Section - A		Section - B
Marks	Frequency	Marks Frequency
0 - 10	5	3
10 - 20	19	9
20 - 30	15	17
30 - 40	10	12
40 - 50	1	9

Represent the marks of the students of both the sections on the same graph by two frequency polygons.

Section - E

Case Study:

36. A school uses a hemispherical bowl made of metal to store drinking water during a sports event. The internal radius of bowl is 7cm. The bowl is painted from the inside to protect from rust.

Based on the above information answer the following questions:

- Find the inner curved surface area of bowl.
- Find the volume of water the bowl can hold.
- If the cost of painting is Rs. 0.10 per cm^2 , find the cost to paint inner surface the bowl.

OR

How much water can be stored in 3 such bowls? (use $\pi = \frac{22}{7}$)

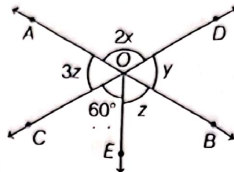
A.

Q-37

Case Study Based Questions

During the maths class, teacher draws a straight line AB on the blackboard as per the following figure.

Now, he told Ramesh to draw another line CD as in the figure and to mark $\angle AOD$ as $2x$. Again, he told Suraj to mark $\angle AOC$ and $\angle COE$ as $3z$ and 60° respectively. After that he marks $\angle BOE$ and $\angle BOD$ as z and y respectively.



Based on the above information, answer the following questions.

- (i) What is the value of z ?
- (ii) What is the value of y ?
- (iii) What is the value of x ? OR
- (iv) Find the value of $2x + y$.

Q-38

Case Study-Based Questions

Attempt any 4 sub parts from each question.
Each sub-part carries 1 mark.

A survey on few families of a particular society is done related to consumption of vegetarian or non-vegetarian food.

Total consumption is represented by a polynomial $p(x) = x^2 - 7x + 10$. On the basis of given information, answer the following questions.



VEGETARIAN NON-VEGETARIAN

- (i) Name the type of the given polynomial.
 - (ii) Write the sum of the coefficients of x^2 and x in the given polynomial.
 - (iii) Find the value of the given polynomial at $x = 1$.
- OR
- (iv) factorise the given polynomial.

A-6