DELHI PUBLIC SCHOOL @SECTOR 98
ANNUAL EXAMINATION 2025
Subject: Maths, Class: IX

Time: 3 h r s .
M.M.: 8 0
P.S. : 5

General Instructions:-

i. *The Question Paper has 5 Sections A-E.*
ii. *Section A has 1 question with 20 MCQs carrying 1 mark each. Section B has 5 questions carrying 2 marks each. Section C has 6 questions carrying 3 marks each. Section D has 4 questions carrying 5 marks each. Section E has 3 case based integrated units of assessment (4 marks each).*
iii. *All questions are compulsory to attempt.*
iv. *Draw neat figures wherever required.*

Section - A

Section A consists of 1 question (20 subparts, each of 1 mark):

Q.1 Choose the correct option.

i. Find the mean of x + 77, x + 7, x + 5, x + 3 and x – 2?
   a. x + 18 b. x + 8
   c. x - 18 d. x - 8

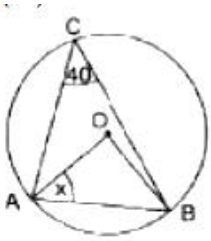
ii. What is the degree of a constant polynomial?
   a. 0 b. 1
   c. 2 d. 3

iii. Point (3, 4) lies on the graph of the equation 3y = kx + 7. The value of k is _____.
   a. $\frac{4}{3}$ b. $\frac{5}{3}$
   c. 13 d. $\frac{7}{3}$

iv. Which of the following point does not lie on the line y = 2x + 3?
   a. (-5, -7) b. (-1, 1)
   c. (3, 9) d. (3, 7)

v. Which of the following is not a postulate of Euclid's Geometry?
   a. A line segment can be extended indefinitely.
   b. A straight line may be drown from one point to another.
   c. Two distinct lines can intersect at more than one point.
   d. A circle can be drawn with any center and radius.

vi. In the figure, if O is the centre of the circle, then measure of x is:
   a. 40° b. 50°
   c. 45° d. 80°



vii. ABCD is a trapezium in which AB ∥ DC. M and N are the mid-points of AD and BC respectively. If AB = 12 cm, MN = 14 cm, then CD = _____ cm.
   a. 10 b. 14
   c. 12 d. 16

viii. If $4^x - 4^{x-1} = 24$, then $(2x)^x$ equals _____.
   a. $\sqrt{5}$ b. $25\sqrt{5}$
   c. 125 d. $5\sqrt{5}$

ix. The point whose ordinate is 3 and which lies on the y-axis is _____.
   a. (3, 3) b. (3, 0)
   c. (1, 3) d. (0, 3)

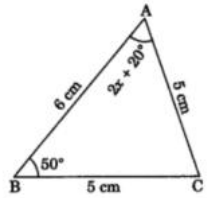
x. The diagonals AC and BD of a parallelogram ABCD intersect each other at point O. If ∠DAC = 32° and ∠AOB = 70°, then ∠DBC = _____.

a. 86° b. 38°
c. 32° d. 24°

xi. The figure formed by joining the mid-points of the adjacent sides of a rhombus is ___.

a. trapezium b. rectangle
c. square d. none of these

xii. In the given figure, measure of ∠BAC is _____.

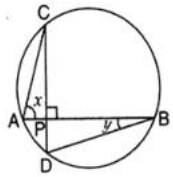


a. 60° b. 50°
c. 80° d. 70°

xiii. The value of $(32)^{\frac{1}{5}} + (-7)^0 + (64)^{\frac{1}{2}}$ is _____.

a. 1 b. 0
c. 10 d. 11

xiv. In the given figure, if chords AB and CD of the circle intersect each other at right angle, then, x + y = _____.



a. 90° b. 45°
c. 50° d. 75°

xv. On simplifying $8^3 \times 2^4$, we get _____.

a. 16^7 b. 2^{13}
c. 2^{10} d. 8^4

xvi. Total surface area of a hemisphere is 4158 cm^2 then the diameter of the hemisphere is equal to _____ cm.

a. 40 b. 20
c. 21 d. 42

xvii. What is the value of the polynomial $2x^2 + 3x - 4$ when x = 2?

a. 8 b. 6
c. 2 d. 4

xviii. **Assertion(A):** If the diagonals of a parallelogram ABCD are equal, then ∠ABC = 90°.
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 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.

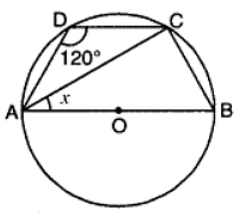
xix. **Assertion (A):** 5 is a rational number.
Reason (R): The square roots of all positive integers are irrationals.

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.

Section - B

Section B consists of 5 questions of 2 marks each:

Q.2 Find the value of x in the given figure:



Q.3 Find the value of a: $\frac{6}{3\sqrt{2}-2\sqrt{3}} = 3\sqrt{2} - a\sqrt{3}$

Q.4 In the figure, if AC = BD, then prove that AB = CD. Also, write the axiom used to prove.

Q.5 The radii of two cylinders of the same height are in the ratio 4 :5, then find the ratio of their volumes.

Q.6 In which quadrant will the point lie, if:

i. the y-coordinate is 3 and the x-coordinate is –4?
ii. the x-coordinate is –5 and the y-coordinate is –3?
iii. the y-coordinate is 4 and the x-coordinate is 5?
iv. the y-coordinate is 4 and the x-coordinate is –4?

Section - C

Section C consists of 6 questions of 3 marks each:

Q.7 Sides of a triangular field are in the ratio of 14 : 20: 25 and its perimeter is 590 m. Find its area. Also, find the cost of harvesting it at the rate of ₹ 8 per m^2.

Q.8 Draw a histogram to represent weekly pocket expenses of 125 students of a school.

Weekly pocket expenses (in ₹)	Number of students
0 – 10	10
10 – 20	20
20 – 30	10
30 – 40	15
40 - 70	30
70 – 100	40

Q.9 In a parallelogram, show that the angle bisectors of two adjacent angles intersect at right angles.

Q.10 Simplify: $\frac{\sqrt{25}}{\sqrt[3]{64}} + \left(\frac{256}{625}\right)^{-\frac{1}{4}} + \frac{1}{\left(\frac{1}{64}\right)^{\frac{2}{3}}}$

Q.11 For what value of c, the linear equation 2x + cy = 8 has equal values of x and y for its solution?

Q.12 If two isosceles triangles have a common base, the line joining their vertices bisects the base at right angles.

Section - D

Section D consists of 4 questions of 5 marks each:

Q.13 If each side of a triangle is doubled, then find the ratio of area of new triangle and the given triangle.

Q.14 A dome of a building is in the form of a hemisphere. From inside, it was whitewashed at the cost of ₹ 498.96. If the rate of whitewashing is ₹ 4 per square metre, find the:

i. inside surface area of the dome.
ii. volume of the air inside the dome.

Q.15 Verify that: $x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x + y + z)[(x - y)^2 + (y - z)^2 + (z - x)^2]$

Q.16 If a = $\frac{1}{7-4\sqrt{3}}$ and b = $\frac{1}{7+4\sqrt{3}}$, then find the value of:

i. $a^2 + b^2$

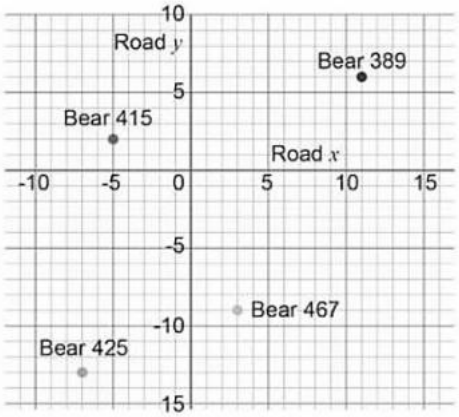
ii. $a^3 + b^3$

Section - E

Section E consists of 3 questions of 4 marks each:

Q.17 Read the text carefully and answer the questions:

A forest ranger keeps track of bears in his area. He plotted their location on a graph. The origin represents the ranger's control room's location. To access and maintain equipment, Road x and Road y have been laid and paved inside the forest. They pass through the control room.



One unit on the graph paper represents 1 km.

a. Which bear is nearest to a paved road?

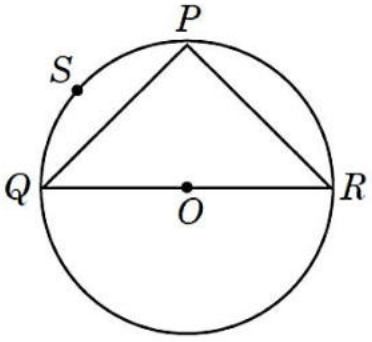
b. How far is Bear 425 from Road x?

c. A tiger is at (11, 4). How far from it is the nearest bear?

d. Bear 467 has been injured. The forest rescue team starts from the control room and decides to use the paved road as much as possible. Which road should they take?

Q.18 Read the text carefully and answer the questions:

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.

a. Find the radius of the circle.

b. Find ∠QPR.

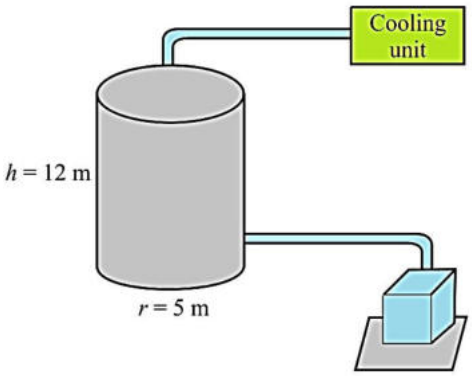
c. Find area of Δ PQR.

d. Find length of the longest chord of the circle.

Q.19 Read the text carefully and answer the questions:

One day teacher planned to take all the Class IX students to the milk factory (chilling plant) and asked the students to observe it carefully. Refer to this plant, (machinery is shown below), answer the following questions.

It is related to some solid shapes, which we study in our curriculum.



a. Refer to cylindrical container, calculate the quantity of milk it can store

b. Calculate the total surface area of cylindrical container.

c. Find the ratio between the volume and curved surface area of the cylindrical container.

d. What is the formula for calculating total surface area of hemisphere?