CBSE Class 9 Maths Sample Paper

SUBJECT: MATHEMATICS
CLASS : IX

MAX. MARKS : 90
DURATION : 3 HRS

General Instruction:

(i) **All** questions are compulsory.
(ii) This question paper contains **28** questions divided into four Sections A, B, C and D.
(iii) **Section A** comprises of 4 questions of **1 mark** each. **Section B** comprises of 6 questions of **2 marks** each. **Section C** comprises of 8 questions of **3 marks** each and **Section D** comprises of 10 questions of **4 marks** each.
(iv) There is no overall choice.
(v) Use of Calculators is not permitted

SECTION – A

Questions 1 to 4 carry 1 mark each.

1. The mean of 8 observations is 40. If 5 is added to each observation then find the value of new mean.

2. Shyam Sunder makes a cuboid of plasticine of sides 5 cm. 2 cm and 5 cm. How many such cuboids will he need to form a smallest cube ?

3. Find the total surface area of a hemisphere of radius 10 cm.

4. In a class, there are p girls and q boys. A student is selected at random. then find the probability of selecting a girl.

SECTION – B

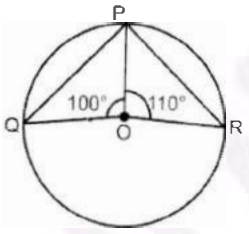
Questions 5 to 10 carry 2 marks each.

5. If the circumference of the base of a cylinder is 132 cm and its height 25 cm. Find the volume of the cylinder.

6. The dimensions of a room are 13 m × 8 m × 5 m. How long an iron rod can be placed ?

7. The following data have been arranged in ascending order of magnitude :
45, 60, 63, x, $x + 2$, 75, 85, 100
If median of the data is 69, find the value of x.

8. In the given figure, O is the centre of the circle. $\angle POQ = 100°$, $\angle POR = 110°$ then find $\angle QPR$.



9. Curved surfaces area of a right circular cylinder is 4.4 m^2. If the radius of the base of the cylinder is 0.7 m, find its height.

10. The total surface area of a solid right circular cylinder is 231 cm^2. If the curved surface area is two-third of the total surface area find the radius of the base.

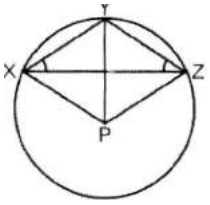
SECTION – C

Questions 11 to 18 carry 3 marks each.

11. If the diagonals of a parallelogram are equal, then show that it is a rectangle.

12. ABCD is a rhombus in which altitude from D to side AB bisects AB. Find the angles of the Rhombus.

13. In the given figure, P is the centre of the circle. Prove that :
$\angle XPZ = 2(\angle XZY + \angle YXZ)$



14. A bag contains fifteen cards bearing number 11, 12, 13, 14, ..., 25. A card is chosen from the bag. Find the probability that it bears
(*i*) a prime number.
(*ii*) a number divisible by 2.

15. Construct ΔABC in which BC = 7cm, $\angle ABC = 45°$ and AB + AC = 13 cm.

16. The length of a room is double its breadth. Its height is 3 m. The area of four walls excluding a door of dimensions 4 m × 2 m is 100 m^2. Find its volume.

17. Assuming the earth to be a sphere of radius 6370 km. If seventy five percent of the earth's surface is covered by water, then find how many square kilometres is area of the land.

18. Find the value of '*a*' if the mean of the following distribution is 50.

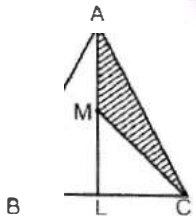
$\bar{x}$	10	30	50	70	90
f	17	$5\bar{a} + 3$	32	$7\bar{a} - 11$	19

SECTION – D

Questions 19 to 28 carry 4 marks each.

19. In the given figure, ABC is a triangle in which L is the mid-point of BC and M is the mid-point of AL. Prove that

$$\text{ar}(\Delta AMC) = \frac{1}{4}\text{ar}(\Delta ABC)$$



20. P, Q, R and S are respectively the mid-points of the sides AB, BC, CD and DA of a quadrilateral ABCD in which AC = BD. Prove that PQRS is a rhombus.

21. Draw the frequency polygon representing the following frequency distribution.

Class Interval	30 – 34	35 – 39	40 – 44	45 – 49	50 – 54	55 – 59
Frequency	12	16	20	8	10	4

22. Difference between the outer lateral surface area and inner lateral surface area of a cylindrical metallic pipe 28 cm long is 176 cm^2. Find the outer and inner radii of the pipe, if the pipe is made of 352 cm^3 of metal.

23. A cloth having an area of 165 m^2 is shaped into the form of a conical tent of radius 5m.

(*a*) How many candidates can sit in the tent if a candidate, on an average, occupies $\frac{5}{7}$ m^2 on the ground ?

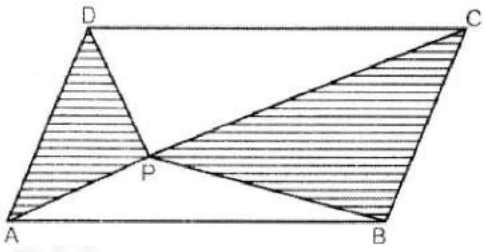
(*b*) Find the volume of the cone.

24. Construct an isosceles triangle whose perimeter is 12 cm and altitude is 4 cm.

25. Two chords AB and CD of a circle of lengths 8 cm and 6 cm respectively are parallel to each other and are on the opposite sides of its centre. If radius of the circle is 5 cm, then find the distance between AB and CD.

26. If the non parallel sides of a trapezium are equal, prove that it is cyclic.

27. In the given figure, ABCD is a parallelogram. P is any point in its interior.
Prove that : ar (ΔAPD) + ar (ΔBPC) = ar (ΔAPB) + ar (ΔCPD)



28. The students of a school from VI to X planted 50 plants in various parts of the school campus. After a month, plants survived which are planted by the students of different classes are given below :

Classes	VI	VII	VIII	IX	X
No. of Plants Survived	40	48	42	39	40

What is the probability of survival of :

(*i*) more than 40 plants which are planted by a class ?

(*ii*) 47 plants which are planted by a class ?

(*iii*) less than 40 plants which are planted by a class ?

(*iv*) What value is depicted in the students act ?