

CBSE Class 9 Maths Sample Paper Set 13

SUBJECT: MATHEMATICS

CLASS : IX

MAX. MARKS : 80

DURATION : 3 HRS

General Instruction:

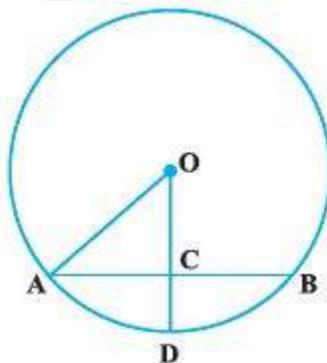
- (i) All questions are compulsory.
- (ii) This question paper contains 30 questions divided into four Sections A, B, C and D.
- (iii) Section A comprises of 10 questions of 1 mark each. Section B comprises of 10 questions of 2 marks each. Section C comprises of 5 questions of 4 marks each and Section D comprises of 5 questions of 6 marks each.
- (iv) There is no overall choice. However, an internal choice has been provided in two questions in 1 mark each, two questions in 2 marks each, four questions of 3 marks each and three questions of 4 marks each. You have to attempt only one of the alternatives in all such questions.
- (v) Use of Calculators is not permitted

SECTION A

1. Which of the following angles is possible to construct with the help of a ruler and a pair of compasses?

- A) 42.5°
- B) 40°
- C) 67.5°
- D) 55°

2. In the figure given below if $OA = 5$ cm, $AB = 8$ cm and OD is perpendicular to AB , then CD is equal to:



- A) 2 cm
- B) 3 cm
- C) 4 cm
- D) 5 cm

3. The small groups obtained on dividing all the observations are called _____ and the size is called _____.

- A) Class size, Class Interval
- B) Class Interval, Class Size
- C) Mid value, Range
- D) Range, Mid Value

4. If the mean of x and $\frac{1}{x}$ is M , then the mean of x^2 and $\frac{1}{x^2}$ is

- A) $2M^2 - 1$
- B) $2M^2 + 1$
- C) $2M^2 \times 1$
- D) $2M^2 - 2$

5. If each edge of a cube is increased by 50%, find the percentage increase in its surface area.

- A) 125%
- B) 150%
- C) 175%
- D) 110%

6. The ratio of total surface area to lateral surface area of a cylinder whose radius is 20 cm and height 60 cm, is:

- A) 2:1
- B) 3:2
- C) 4:3
- D) 5:3

7. Find the surface area (in cm. sq.) of a container with radius 4 cm and height 10 cm, assuming it has an open top. The bottom is closed.

- A) 301.6
- B) 351.9
- C) 251.3
- D) 421.6

8. The edges of a triangular board are 6 cm, 8 cm and 10 cm. The cost of painting it at rate Of 9 paise per cm^2 in Rupees is:

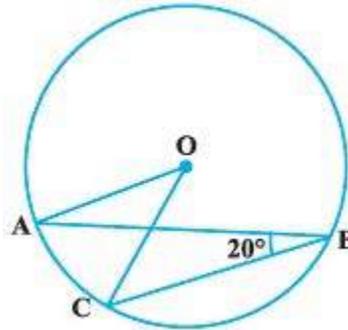
- A) 2.00
- B) 2.16

- C) 2.48
- D) 3.00

9. The sides of a triangle are 56cm, 60cm. and 52cm. long. The area of the triangle is.

- A) 4311 cm²
- B) 4322 cm²
- C) 2392 cm²
- D) None of these

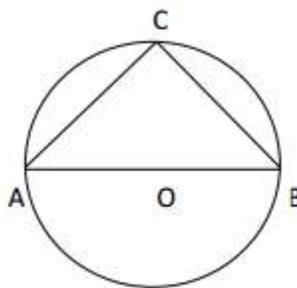
10. In the figure given below , if $\angle ABC = 20^\circ$, then $\angle AOC$ is equal to



- A) 20°
- B) 40°
- C) 60°
- D) 10°

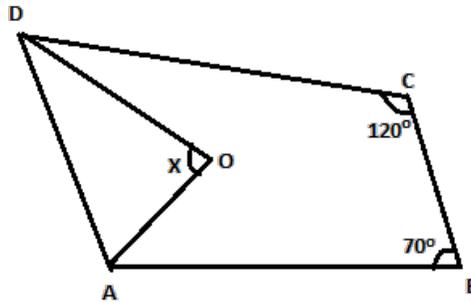
SECTION B

1. In the figure given below, AOB is a diameter of the circle and $AC = BC$, find $\angle CAB$



2. Out of 25 students, participating in a quiz competition 10 are girls. Find the probability that the winner is a boy.
3. Three angles of a quadrilateral are 85°, 100° and 75°, then find the fourth angle of a quadrilateral.

- A triangle ABC can be constructed in which $\angle B = 135^\circ, \angle C = 80^\circ$ and $AB + BC + AC = 13 \text{ cm}$, Is the statement true? Give reason.
- A die is drop at random on the rectangular region of sides $3\text{m} \times 2\text{m}$. What is the probability that it will land inside the circle with diameter 1m ?
- In the given figure, $ABCD$ is a quadrilateral and AO and DO are bisectors of $\angle A$ and $\angle D$. The value of ' x ' is



- The mean of 40 observations was 200. It was detected by rechecking that the value of 65 was wrongly copied as 25 for computation of mean. Find the corrected mean.
- If the surface area and volume of a cylinder are equal, find the diameter of the cylinder.
- If surface area of a sphere is 616 cm^2 , find its radius.
- If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection; prove that the chords are equal.

SECTION C

- If the angles of a quadrilateral EFGH, taken in order, are in the ratio of $7 : 3 : 4 : 6$, which type of quadrilateral is EFGH and why ?
- Bisectors of two adjacent angles A and B of quadrilateral $ABCD$ intersect at a point O . Show that $\angle AOB = \frac{1}{2}(\angle C + \angle D)$.
- If the number of hours for which a laborer works is x and y are his wages (in Rupees) and $y = 2x - 1$, draw the graph of work-wages equation. From the graph, find the wages of the laborer if he works for 6.
- The following table give the life time of 400 neon lamps:

Life time (in hrs)	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
Number of lamps	14	56	60	86	74	62	48

A bulb is selected at random . Find the probability that the life time of the selected bulb is:

- Less than 400
- Between 300 to 800 hours.
- At least 700 hours.

5. Construct a cumulative frequency distribution table from the frequency table given below:

Class Interval	Frequency
1 – 10	12
11 – 20	18
21 – 30	23
31 – 40	15
41 – 50	10

SECTION D

- A spherical ball of lead 3 cm in diameter is melted and recast into three spherical balls. If the diameters of the small balls are $\frac{3}{2}$ cm, 2 cm and p cm, find
 - Volume of the ball before melting.
 - Volume of the each spherical ball after melting.
 - Find the value of p
- Construct a $\triangle ABC$, in which $BC = 4.5$ cm, $\angle B = 45^\circ$ and $AB - AC = 2.5$ cm and justify the construction
- A conical tent is made of 4.5 m wide tarpaulin. Vertical height of the conical tent is 4 m and base radius is 3 m. Find the length of the tarpaulin used, assuming that 10% extra material is required for stitching margins and wastage in cutting (Take $\pi = 3.14$)
- A circular park of radius 20m is situated in a colony. Three boys Ankur, Syed and David re sitting at equal distance on its boundary each having a toy telephone in their hand to talk each other. Find the length of the string of each phone
- The parallel sides of a trapezium are 77 m and 60 m and its non-parallel sides are 26 m and 25 m., find the area of the trapezium.