Class 9 Mathematics

SA2 (Sample Paper-1)

Max. Marks 80

General Guidelines:

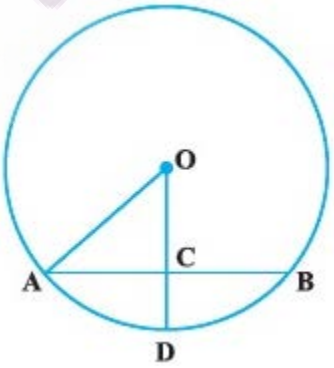
- The question paper consists of 30 questions divided into four sections A, B, C and D.
- All the questions are compulsory
- **Section A contains 10 questions which carries 1 mark each (1 x 10 = 10)**
- **Section B contains 9 questions which carries 2 marks each (2 x 10 = 20)**
- **Section C contains 9 questions which carries 4 marks each (4 x 5 = 20)**
- **Section D contains 6 questions which carries 6 marks each (6 x 5 = 30)**
- The use of calculators is prohibited

SECTION A

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

   Option A :42.5°
   Option B :40°
   Option C :67.5°
   Option 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:



   Option A : 2 cm
   Option B : 3 cm
   Option C : 4 cm
   Option D : 5 cm

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

Option A : Class size, Class Interval
Option B : Class Interval, Class Size
Option C : Mid value, Range
Option 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

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

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

Option A : 125%
Option B : 150%
Option C : 175%
Option 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:

Option A : 2:1
Option B : 3:2
Option C : 4:3
Option 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.

Option A : 301.6
Option B : 351.9
Option C : 251.3
Option D : 421.6

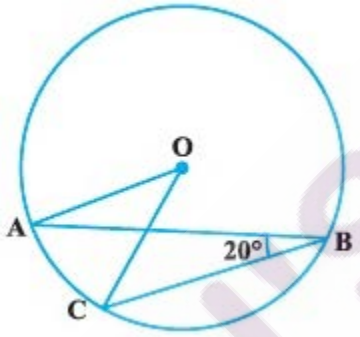
8. The edges of a triangular board are 6 cm, 8 cm and 10 cm. The cost of painting it at rate 0f 9 paise per cm^2 in Rupees is:

Option A : 2.00
Option B : 2.16

Option C : 2.48
Option D : 3.00

9. The sides of a triangle are 56cm, 60cm. and 52cm. long. The area of the triangle is.
   Option A : 4311 cm^2
   Option B : 4322 cm^2
   Option C : 2392 cm^2
   Option D : None of these

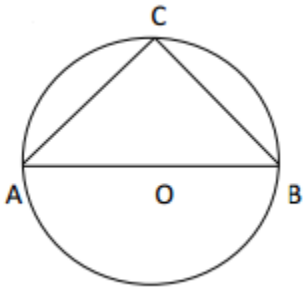
10. In the figure given below , if $\angle ABC = 20^o$, then $\angle AOC$ is equal to



   Option A : 20^o
   Option B : 40^o
   Option C : 60^o
   Option D : 10^o

SECTION B

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

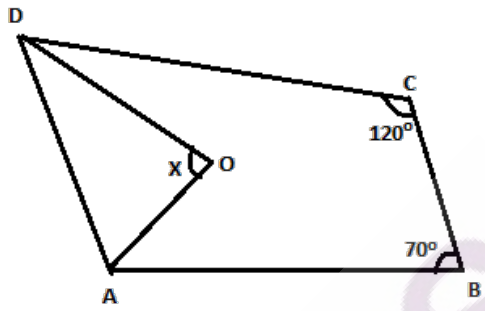


2. Out of 25 students, participating in a quiz competition 10 are girls. Find the probability that the winner is a boy.
3. Three angles of a quadrilateral are $85°, 100°$ and $75°$, then find the fourth angle of a quadrilateral.

4. A triangle ABC can be constructed in which $\angle B = 135°, \angle C = 80°$and $AB + BC + AC = 13\ cm$, Is the statement true? Give reason.

5. A die is drop at random on the rectangular region of sides 3m × 2m. What is the probability that it will land inside the circle with diameter 1m ?

6. 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



7. 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.

8. If the surface area and volume of a cylinder are equal, find the diameter of the cylinder.
9. If surface area of a sphere is 616 cm^2, find its radius.
10. 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

1. 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 ?
2. Bisectors of two adjacent angles A and B of quadrilateral $ABCD$ intersect at a point O. Show that $\angle AOB = \frac{1}{2}(\angle C + \angle D)$.
3. 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.
4. 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:

(i) Less than 400

(ii) Between 300 to 800 hours.

(iii) 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

1. 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
   (i) Volume of the ball before melting.
   (ii) Volume of the each spherical ball after melting.
   (iii) Find the value of p
2. Construct a ΔABC, in which $BC = 4.5\ cm$, $\angle B = 45°$ and $AB - AC = 2.5\ cm$ and justify the construction
3. 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 π = 3.14)
4. 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
5. 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.