CBSE Sample Papers for Class 10 SA2
Maths Solved 2016 Set 4

Code LNCBSE

Roll No.

Candidates must write the code on
the title page of the answer-book

- Please check that this question paper contains 5 printed pages .
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 31 questions.
- Please write down the Serial Number of the question before attempting it.
- 15 minutes time has been allotted to read this question paper.

MATHEMATICS

Time allowed : 3 hours   Maximum Marks : 90

General Instructions:

(i) All questions are compulsory.

(ii) The question paper consists of **31** questions divided into four sections — **A, B, C** and D.

(iii) Section **A** contains **4** questions of **1** mark each, Section **B** contains **6** questions of **2** marks each, Section **C** contains **10** questions of **3** marks each and Section **D** contains **11** questions of **4** marks each.

(iv) In question on construction, the drawing should he neat and exactly as per the given measurements.

(v) Use of calculators is not permitted.

Section A

1.Is x = -3 a solution of the equation $3x^2 - 9x + 5 = 0$?

2.What will be the angle of elevation of the top of a 50 m high tower at a point 50 m away from the foot of the tower?

3.Find the distance between two parallel tangents of a circle of radius 5 cm.

4.What is the probability of a sure event?

Section B

5.Find the roots of the following quadratic equation: $3X^2 - 7x + 4 = 0$ '

6.Which term of Arithmetic Progression 2, 7, 12, 17, ... is 127?

7.Two circles touch each other at A. BC and AD are common tangents. Prove that BD = CD
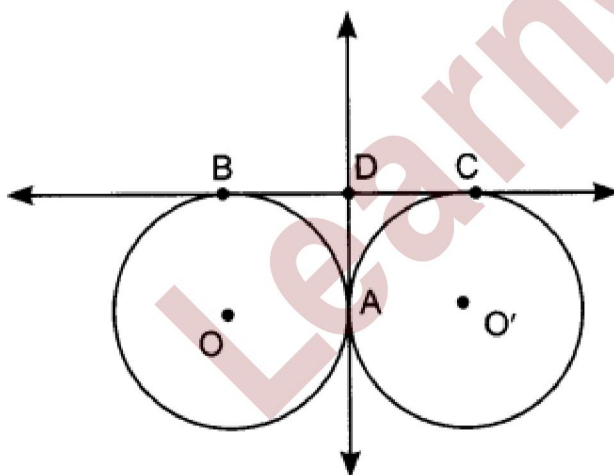
8.In the given figure, an isosceles Triangle PQR with PQ = PR, circumscribes a circle. Prove that point of contact M bisects QR.

9.Find the value of k, when the distance between the points (3, k) and (4, 1) is /10. Find the area of the triangle whose vertices are (2, 3), (-1, 0) and (2, -4).

Section C

10.Sum of a positive number and its reciprocal is 65/8. Find the number.

12.Determine the AP whose 5th term is 15 and the sum of 3rd and 8th term is 34.

13.From a point on the ground, the angle of elevation of the bottom and top of a transmission tower fixed at the top of a 40 m high building are 45° and 60° respectively. Find the height of the tower.

14.Find the area of the minor segment of a circle of radius 28 cm, if length of the corresponding arc APB is 44 cm. (Take,pie= 22/7)
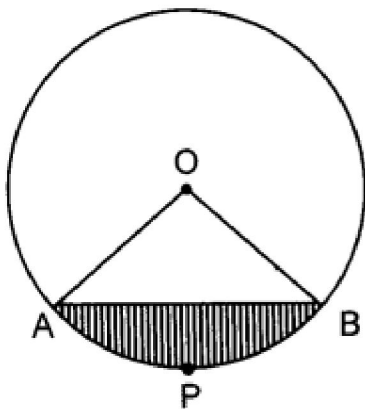
15.A toy is in the form of a cone of radius 7 cm mounted on a hemisphere of same radius. The total height of the toy is 31 cm. Find the total surface area of the toy. (Take, pie =22/7)

16.An ice cream cone consists of a right circular cone of height 14 cm and diameter of the circular top is 5 cm. It has hemisphere on the top with the same diameter as of circular top. Find the volume of the ice cream in the cone. (Take, pie = 22/7)

17.A cube of 18 cm edge is immersed completely in a rectangular vessel containing water. If the dimensions of the base of the rectangular vessel are 30 cm and 24 cm, find the rise in water level in the vessel.

18.The internal and external diameters of a hollow hemispherical vessel are 6 cm and 10 cm respectively. It is melted and recast into a solid cone of base diameter 14 cm. Find the height of the cone so formed.

19.Find the ratio in which the point (2, y) divides the line segment joining the points A(-2, 2) and B(3, 7). Also find the value of y.

20. A card is drawn at random from a well shuffled deck of playing cards. Find the probability that the card drawn is (0 a king, (ii) a red card (iiiI) a face card.

Section D

21. Solve for x: $\dfrac{1}{x+7} + \dfrac{1}{x+3} = \dfrac{6}{5}$, $x \neq -7, -3$

*22. One fourth of a group of people claim that they are creative, twice the square root of the group claim to be caring and the remaining 84 claim they are optimistic.

(i) Find the total number of people in the group.

(ii) Which of the values according to you is essential for development of a society?

23. A sum of ? 2750 is to be used to give ten cash prizes to the students of a school for their over all academic performance. If each prize is ? 50 less than the preceding prize, find the value of each prize.

24. As observed from the top of a 75 m tall lighthouse, from the sea-level the angles of depression of two ships are 30° and 45°. If one ship is exactly behind the other on the same side of the light-house, find the distance between the two ships. (Take /3 = 1.73)

*Value Based Question

25. Prove that the lengths of tangents drawn from an external point to a circle are equal.
26. A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC
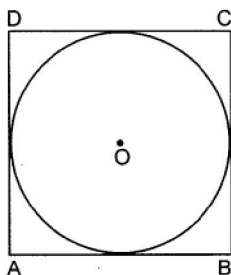
27. Construct a triangle similar to AABC with BC = 6 cm, AB = AC = 5 cm such that each of its side is — of the corresponding sides of ABC.

28.From each of the two opposite corners of a square of side 16 cm, a quadrant of a circle of radius 2.8 cm is cut. Another circle of radius 5.6 cm is also cut from the centre. Find the area of the shaded portion of the 22 square.

2.8 cm
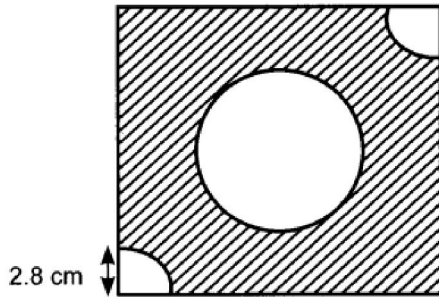
29.If the radii of the circular ends of a conical bucket which is 32 cm high are 40 cm and 16 cm, find the capacity

and total surface area of the bucket.

30.Let A(4, 2), B(6, 5) and C(l, 4) be the vertices of AABC.

(i) Median from A meets BC at D. Find the coordinates of the point D.

(ii) Find the coordinates of the point P on AD such that AP : DP = 2 : 1

(iii) Find the length of AD.

31.Two coins are tossed once. Find the probability of getting.

(i) two heads

(ii) exactly one tail

(iii) two tails

(iii) sum of probability of (i) , (ii) and (iii)