CLASS X
SAMPLE PAPER
MATHS

Time : 1hrs   Marks : 90

General Instructions.

i)   **All Questions are compulsory**

ii)   **The Questions paper consists of 31 questions divided in to four section – A, B, C, D**

iii)   **Section A contains 4 Questions of 1 mark each, which are multiple choice type questions, section B contains 6 questions of 2 marks each, section C contains 10 questions of 3 marks each, section D contains 11 questions of 4 marks each.**

iv)   **USE of calculators is not permitted.**

Section – A

Question numbers 1to 4 carry 1 marks each.

1.   In a single through of a pair of dice, the probability of getting the sum a perfect square is

   a) $\dfrac{1}{18}$ b) $\dfrac{7}{36}$ c) $\dfrac{1}{6}$ d) $\dfrac{2}{9}$

2.   If abscissa of point is positive then it can lie in

   a) first quadrant   b) third quadrant   c) fourth quadrant   d) both a and c

3.   The value of $\sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2+\ldots}}}}\ldots\ldots\ldots\ldots\ldots\ldots is$

   a) 2   b) 3   c) 4   d) none

4.   If the first, second and last term of an A.P. are a, b, and 2a respectively, its sun is

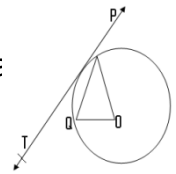   a) $\dfrac{ab}{2(b-a)}$ b) $\dfrac{ab}{b-a}$ c) $\dfrac{3ab}{2\left(b-a\right)}$ d) none

Section – B

Question numbers 5 to 10 carry 2 marks each.

5.   The 10th term and 15th term of an A.P. are 44 and 64 respectively. Find the arithmetic progression.

6. Find the value of m so that the quadratic equation $mx(x-7)+49=0$

7. In the adjacent figure, 'O' is the centre of a circle, PQ is chord and PT is the ta
    $\angle POQ = 70^0, \quad then \quad find \quad \angle TPQ$

8. a chord of length 12cm is at a distance of 8cm from the centre of a circle. Determine the length of the chord of the same circle which is at a distance of 6cm from the centre.

9. In an equilateral $\triangle ABC$ of side 14cm, the side BC is the diameter of semicircle as shown in the figure. Find the area of the shaded region. $\left(\sqrt{3} = 1.732\right)$
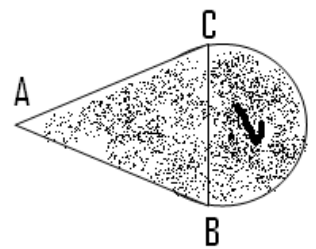
10. Find the point on the y – axis which is equidistant from (-5, -2)m And (3,

Section – C

Questions numbers 11 to 20 carry 3 marks each.

11. In what ratio does the point (2,4) divide the join of (7, 9) and (-1, 10)

12. From your pocket money, you save Rs 1 on day one, Rs. 2 on day two, R 3 on day 3 and so on . How much money. Will you in the month of Feb 2016?

13. Given that one root of the equation $ax^2 + bx + c = 0$ is three times the other, show that $3b^2 = 16ac$

14. $\triangle ABC$ is a triangle right angled at B, with AB = 14 cm and BC = 24cm with the vertices A,B and C as centre arcs are drawn each radius 7cm. Find the area of the shaded region.
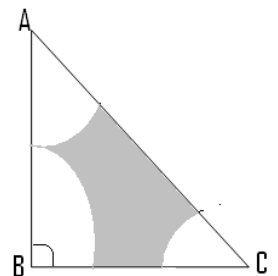
15. Draw a circle of radius 2.1cm. Take a point 'P' 3.8 cm away from the centre, construct a pair of tangents to the circle and measure their lengths.

16. One card is drawn from a pack of 52 cards being equally likely to be drawn. Find the probability that the card drawn is i) An ace   ii) a red face card   iii) A black king

17. Show that tangent lines at the ends of a diameter of a circle are parallel.

18. A tent in the form of a right circular cylinder surmounted by a cone. The diameter of cylinder is 24m. the height of the cylindrical portion is 11M while the vertex of the cone is 16M above the ground. Find the area of canvas required for the tent.

19. The angle of elevation of a ladder leaning against a wall is 60^0 and the foot of the ladder is 9.5m away from the wall. Find the length of the ladder.

20. Find the trisection points of line segment joining (3,-4) and (1,2)

Section – D

Questions numbers 21-31 carry 4 marks each.

21. Water is flowing at the rate of 10 km / hr through a pipe of diameter 16cm into a cuboidal tank of dimensions 22m x 20m x 16m. How long will it take to fill the empty tank?

22. The angles of elevation and depression of the top and bottom of a light – house from the top of a 60m high building are 30^0 and 60^0 respectively. Find.

    i) The difference between the heights of the light – house and the building.

    ii) The distance between the light – house and the building.

23. Find the roots of the equation.

$$\frac{1}{2x-3} + \frac{1}{x-5} = 1 \ , \ x \neq \frac{3}{2} \ , \ 5$$

24. Find the area of a parallelogram ABCD if three of its vertices are $A(2,4)\,, B\left(2 + \sqrt{3}\,,\,5\right)$ and C(2,6)

25. a sum of Rs. 1600 is to be used to give ten cash prizes to students of a school for their overall academic performance. If each prize is Rs. 20 less than its preceding prize, find the value of each of the prizes.

26. A bag contains 12 balls out of which x are white.

    i) If one ball is drawn at random, what is the probability that it will be a white ball?

    ii) If 6 more white balls are put in the bag, the probability of drawing a white ball will be double than that in (i) find x.

27. Draw a right triangle in which the sides (other than hypotenuse) are of lengths 4cm and 3cm then construct another triangle whose sides are $\frac{3}{5}$ times the corresponding sides of the given triangle.

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28. Divide 32 into four parts which are in A.P. such that the product of extremes is to the product of means is 7:15

29. A container open at the top and made up of metal sheet is in the form of a frustum of a cone of height 16cm with diameters of its lower and upper ends as 16cm and 40cm respectively. Find the cost of metal sheet used to make the container, if it costs Rs. 10 per $100cm^2$.

30. If a student had walked 1km / hr faster, he would have taken 15 minutes less to walk 3km find the rate at which he was walking.

31. Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the point of contact at the centre.

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