# New Vision Institutes

## Class : X

## CBSE Guess Paper

## MATHS

Time : 3hrs 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. Minute hand of a clock is 21cm. Distance moved by the tip of minute hand in 1hr is _[ ]

   a) $21\ \pi cm$ b) $42\ \pi cm$ c) $10.5\ \pi cm$ d) $7\ \pi cm$

2. If $\alpha$ and $\beta$ are zeroes of equation $x^2 - 1 = 0$ then value of $\alpha + \beta$ = ___ [ ]

   a) $\alpha\beta$ b) $\alpha^2 + \beta^2$ c) $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$ d) $\frac{1}{\alpha} + \frac{1}{\beta}$

3. A number 'x' is choosen at random from -3, -2, -1, 0, 1, 2, 3. Find the probability that $|x| \leq 2$ is _____ [ ]

   a) $\frac{1}{7}$ b) $\frac{3}{7}$ c) $\frac{2}{7}$ d) $\frac{5}{7}$

4. There are 'n' arithmetic means between a and b . The common difference 'd' is _ [ ]

   a) $\frac{ab}{n+1}$ b) $\frac{n+1}{b+a}$ c) $\frac{b-a}{n+1}$ d) $\frac{b+a}{n+1}$

### Section – B

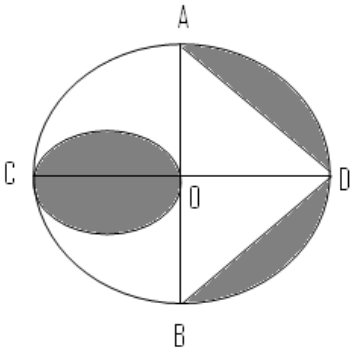
**Question numbers 5 to 10 carry 2 marks each.**

5. Find the discriminant of the quadratic equation $3\sqrt{3}\,x^2 + 10x + \sqrt{3} = 0$
6. Three consecutive terms of an A.P. are 2p + 1, 13, 5p – 3, find 'p'
7. Find the value of 'y' for which the distance between the points
   A(3, -1) and B( 11, y) is 10 units.
8. A bicycle wheel makes 5000 revolutions in moving 11 km. Find the diameter of the wheel.
9. A circle touches all the four sides of a quadrilaterals ABCD whose sides are
   AB = 6cm, BC = 9cm and CD = 8cm Find the length of side AD.
10. Cards each marked with one of the number 4, 5, 6…..20 are placed in a box and mixed thoroughly , one card is drawn at random from the box. What is the probability of
    i) getting even prime number ii) getting odd number.

## Section – C

**Questions numbers 11to 20 carry 3 marks each.**

11. Find the sum of $\left(1-\frac{1}{n}\right)+\left(1-\frac{2}{n}\right)+\left(1-\frac{3}{n}\right)$…….. n terms
12. Solve $9x^2 - 15x + 6 = 0$ by the method of completing the square.
13. A horse is placed for grazing inside a rectangular field 70m by 52m and is tethered to one corner by a rope 21m long. How much area can it graze?
14. If the diameter of cross section of a wire is decreased by 5% how much percent will the length be increased so that the volume remains the same?
15. Red kings and black aces are removed from a pack of 52 cards. The remaining cards are well shuffled and then a card is drawn from it. Find the probability that the drawn card is
    i) a black face card ii) a red card.
16. In what ratio is the line segment joining (-3,-1) and (-8, -9) divided at the point $\left(-5, \frac{-21}{5}\right)$?
17. Two concentric circles of radii 5cm and 3cm are drawn. Find the length of the chord of the larger circle which touches the smaller circle.




18. Suppose you are shooting an arrow from the top of a building at an height of 6m to a target on the ground at an angel of depression of $60^0$ what is the distance between you and the object.

19. Draw a circle of radius 6cm. Draw a tangent to this circle making an angle of $30^0$ with a line passing through the centre.

20. A toy rocket of height 26cm is in the shape of cylinder of base diameter 3cm, surmounted by a cone of height 6cm with base radius 2.5cm. find the total surface area of the toy.

**Section – D**

**Questions numbers 21-31 carry 4 marks each.**

21. A steamer takes 50 minutes to go 10km upstream and returns back to the original place. If the speed of the river is 5km/h, find the speed of the steamer in still water.

22. Raheem buys a shop for. ₹ 20, 000. He pays half of the amount in cash and agrees to pay the balance in 12 annual installments of ₹. 5000 each. If the rate of interest is 12% and he pays with the installment the interest due on the unpaid amount, find the total cost of the shop.

23. Prove that the area of triangle whose vertices are (t, t-2), (t + 2, t+ 2) and (t + 3, t) is independent of 't'

24. Draw a $\Delta\, ABC$ in which BC = 6cm, AB = 4cm and Ac = 5cm, draw a triangle similar to $\Delta\, ABC$ with its sides equal to $\frac{3}{4}$ of the corresponding sides of $\Delta\, ABC$

25. A gulabjamun contain sugar syrup up to about 30% of its volume. Find approximately how much syrup would be found in 45 gulabjamuns shaped like a cylinder with two hemispherical ends, if the complete length of each of the gulabjamun is 5cm and its diameter is 2.8cm

26. From the adjacent figure, AB is a diameter of a circle with centre 'O' and OA = 7cm. Find the area of the shaded region.

27. If the angle of elevation of a cloud from a point **'h'** metres above a lake is $\alpha$ and the angle of depression of its reflection in the lake is $\beta$, prove that the height of the cloud is $\frac{h(\tan\beta + \tan\alpha}{\tan\beta - \tan\alpha}$

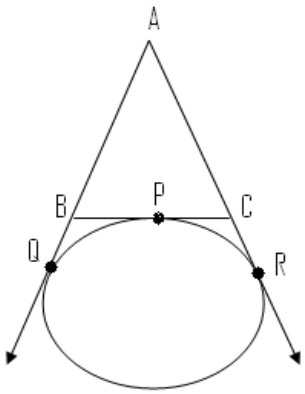
28. A bucket has top and bottom diameter of 40cm and 20cm respectively. Find the volume of the bucket if its depth is 12cm. Also find the cost of tin sheet used for making the bucket at the rate of Rs. 0.12 per $dm^2$

29. On tossing three coins simultaneously, find the probability of getting

    i) 3 tails ii) 2 tails iii) no tail

    iv) 2 heads and 1 tail v) at least one head

30. a circle touches the side BC of $\Delta ABC$ at 'p' and touches AB and AC when produced at 'Q' and 'R' respecrively as shown in figure, show that $AQ = \frac{1}{2}(perimeter\ of\ \Delta ABC)$




31. Prove that the straight line y – x + 2 = 0 cuts the straight line joining (3, -1) and (8, 9) in the ratio 2:3.

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