This Guess paper is presented to our Young Viewer's
With lot's of best wishes
For
Board Exams - 2010

Vivek sir

For any queries, please feel free to contact to :-


# Career Academy Tutorials

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**Practice Paper - 2010**
**Class - X**
**Subject - Maths(Theory)**

**Time : 3 hrs** **MM : 80**

**General instructions:-**

1.All Questions are compulsory.
2.The question paper consists of 30 questions divided into 4 sections A, B, C, and D. Section A comprises of 10 questions of 01 marks each, section B comprises of 5 questions of 02 marks each, section C comprises of 10 questions of 03 marks each, and section D comprises of 5 question of 06 marks
3. All questions in section A are to be answered in one word, one sentence or as per the exact requirement of the question.
4. There is no overall choice. However internal choice has been provided in one question of 02 marks each, three questions of 03 marks each & one question of 06 marks each.You have to attempt only one of the alternatives in all such questions.
5. Uses of calculators are not permitted. However you may ask for mathematical tables.

## Section A

1.Find a sequence $\{a_n\}$ is given by the formula $a_n = 10 - 3n$. Prove that it is an A.P.

2.Given that tan A = 4/3, what is the value of $\dfrac{\operatorname{cosec}^2 A - \sec^2 A}{\operatorname{cosec}^2 A + \sec^2 A}$.

3.A semi circular sheet of metal of diameter 28 cm is bent into an open conical cup . Find the depth and capacity of the cup.

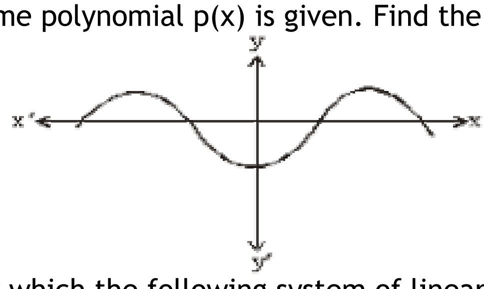
4.If a,b,c are rational, D > 0 and not a perfect square, what would be the nature of roots ?

5.What is fundamental theorem of arithmetic ?

6.Find the median, If mean = 49.7 and mode = 46.1 of a data is given.

7.Find the perimeter of a sector of a circle with diameter 8 cm if angle of the sector is $36^0$.

8.In the figure the graph of some polynomial p(x) is given. Find the zeros of the polynomial.




9.Find the value of α and β for which the following system of linear equations have infinitely many solutions.
$2x + 3y = 7$, $2\alpha x + (\alpha + \beta)y = 28$

10.Find the centre of circle passing through the points [6,- 6], [3,-7] and [3,3].

## Section B

11.A sector of radius 15 cm has the angle $120^0$.It is rolled up so that two bounding radii are joined together to form a cone .find volume of the cone.( use $\pi = 22/7$ )

12.There are three consective positive integers such that the sum of the square of the first and the product of the other two is 154. what are the integers ?

13.ABC is a right triangle at C , P and Q are points on the sides CA and CB respectively which divides these sides in the ratio 1:2 .Prove that $9[AQ^2 + BP^2] = 13\ AB^2$

**Or**

Prove that the opposites sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

14. Solve for x and y :
$2ax + 3by = a + 2b$
$3ax - 2a = b - 2by$

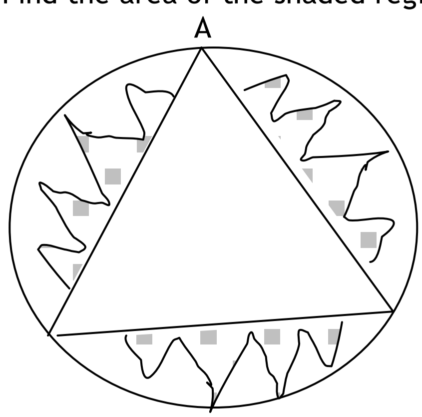
15. Find the sum of 'n' terms of the sequence $\{a_n\}$ where $a_{n = 5-6n}$

**Section C**

16. For what value of k, $[4-k]\ x^2 + [2k+4]\ x + [8k+1] = 0$ is a perfect square.

17. Find the HCF and LCM of 144, 180 and 192 by prime factorization method.

18. In a circular table cover of radius 32 cm, a design is formed leaving an equilateral triangle ABC in the middle as shown in figure. Find the area of the shaded region.




19 . Solve the following system of linear equations graphically:
$2x + y = 8$ , $3x - 2y = 12$ also find the coordinates of the points where the lines meet the x – axis.

**Or**

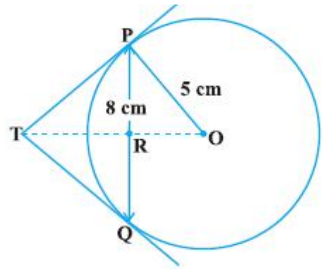
If the points [a,0], [0,b], [1,1] are collinear. Show that b + a = ab.

20. Draw a circle of radius 4 cm .Take two points P and Q and one of it's extended diameter each at a distance of 6 cm from its centre , draw tanents from P and Q.

21.Prove that in two concentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

**Or**

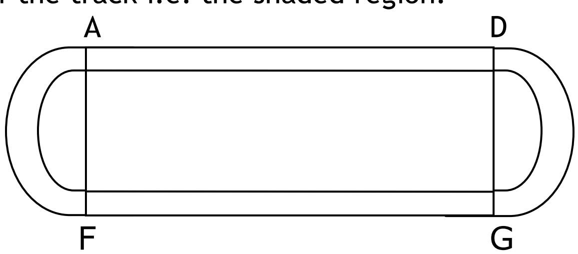
PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T. Find the length TP.




22. Find the ratio of area of a square inscribed in a semicircle to the area of a square inscribed in a quadrant of the same circle .

**Or**

An athletic track 14 m wide consists of two sections,120 m long joining semi-circular ends whose inner radius is 35 m. find
(i) The distance around the track along its inner edge.
(ii)The area of the track i.e. the shaded region.




23. A man when asked how many hens and buffaloes he has ,told that his animals have 120 eyes and 180 legs.how many buffaloes he has ?

24.Find the number of terms common to the two A.P.'s 2,9,16............ 709 and 3,7,11..........407.

25. Find the probability for a leap year to have 52 Mondays and 53 Sundays.

## Section D

26.Find mean,median ,mode of the following data.

| Class | Frequencies |
|---|---|
| 25 – 35 | 7 |
| 35 – 45 | 31 |
| 45 – 55 | 33 |
| 55 – 65 | 17 |
| 65 – 75 | 11 |
| 75 - 85 | 01 |
| Total | 100 |

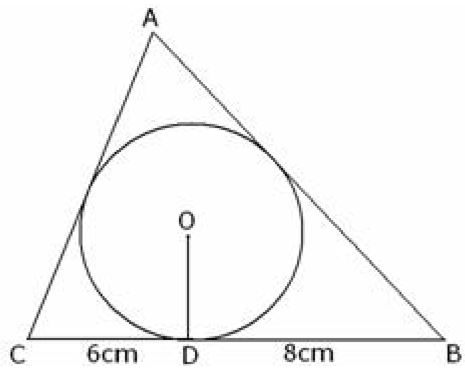
27. A shuttle cock used for playing badminton has the shape of a frustum of a cone mounted on a hemisphere. The external diameter of the frustum are 5 cm and 2 cm, the height of the entire shuttle cock is 7 cm. find its external surface area.

**Or**

A toy is in the form of a cone mounted on a hemisphere of diameter 7 cm. the total height of the toy is 14.5 cm.Find the volume and the total surface area of the toy.

28. State and prove Pythagoras theorem. Using the above theorem show that In a triangle ABC if AD is the median then $AB^2 + AC^2 = [BD^2 + AD^2]^2$ .

29. A triangle ABC is drawn to circumscribe a circle of radius 4 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 8 cm an 6 cm respectively. Find the sides AB and AC.




30. Solve the quadratic equation
$abx^2 = [a + b]^2 \times [x-1]$

**Or**

$$\frac{1}{\operatorname{cos} ecA - \cot A} - \frac{1}{\sin A} = \frac{1}{\sin A} - \frac{1}{\operatorname{cos} ecA + \cot A}$$