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

Vivek sir

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Guess 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. Which of the following are terminating decimals ?

$$\frac{12}{50}, \frac{1}{120}, \frac{3}{33}, \frac{45}{170}, \frac{9}{128}, \frac{7}{625}.$$

2. The lengths of two cylinders are in the ratio 3 : 1 and their diameters are in the ratio 1 : 2. Calculate the ratio of their volumes.

3. Find the perimeter of the sector whose base radius is 14 cm and central angle is 120°.

4. Which measure of central tendency is given by the x – coordinate of the point of intersection of the 'more than' ogive and 'less than' ogive ?

5. The height of a tower is 10 m. Calculate the height of its shadow when Sun's altitude is $45^{0.}$

6. The common difference of an A.P. is 4. Find the value of $a_{60} - a_{55}$

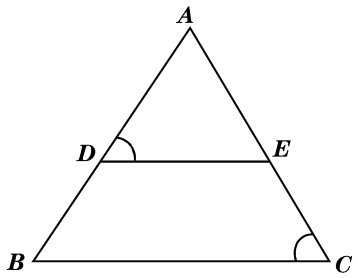
7. If the abscissa of a point is X and ordinate is Y, then what are the coordinates of that point ?

8. A ladder is placed against a wall such that its foot at a distance of 2.5 m from the wall and its top reaches a window 6 m above the ground.Find the length of ladder.

9. Represent the following situation mathematically :
Vivek and Neha together have 45 marbles.Both of them lost 5 marbles each, and the product of marbles they have now is 124.

10.Give the general form for a pair of linear equations in two variables.

11. In the given figure $\frac{AD}{DB} = \frac{AE}{EC}$ and $\angle ADE = \angle ACB$. Prove that ABC is an isosceles triangle.



12. Without using trigonometric table, evaluate the following:

$$\frac{2\cos 65^0}{\sin 25^0} - \frac{\tan 20^0}{\cot 70^0} - \sin 90^0 + \tan 5^0 \tan 35^0 \tan 60^0 \tan 55^0 \tan 85^0$$

13. If $\tan A = \frac{1}{2}, \tan B = \frac{1}{3} and \tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A.\tan B}$, Find A+B

14. Prove that the tangent at any point of a circle is perpendicular to the radius through the point of contact.

15. A bag contains 12 balls out of which 'x' are black.
    (i) If one ball is drawn at random, what is the probability that it will be a black ball ?
    (ii) If 6 more black balls are put in the bag, the probability of black ball will be double than that in (i). Find x.

Section - C

16. Prove that $\sqrt{3}$ is an irrational number.

17. How many terms of the AP: 24, 21, 18, ….. must be taken so that their sum is 78 ?

Or

Find the sum of first 24 terms if the n^{th} term is given by $a_n = 9 - 5n$

18. Prove the identities : $\frac{\tan A + \sec A - 1}{\tan A - \sec A + 1} = \frac{1 + \sin A}{\cos A}$

19. Show that the points A (2, -2), B (14, 10), C (11, 13) and D (-1, 1) are the vertices of a rectangle.

Or

Determine the ratio in which the points (6, a) divides the join of A (-3, -1) and B (-8, 9). Also find the value of "a".

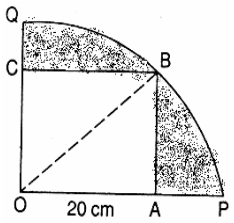
20. Draw a triangle ABC with side BC = 7cm, B = 45°, A = 105°. Then, construct a triangle whose sides are $\frac{4}{3}$ times the corresponding sides of ΔABC.

21. Solve by using Quadratic formula: $4x^2 + 2(b - 3a)x - 3ab = 0$

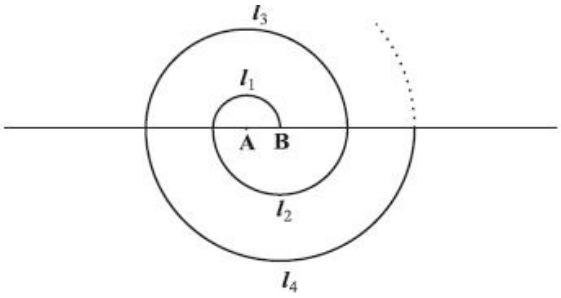
Or

Solve the equation by the method of completing the square: $2x^2 - 5x + 3 = 0$

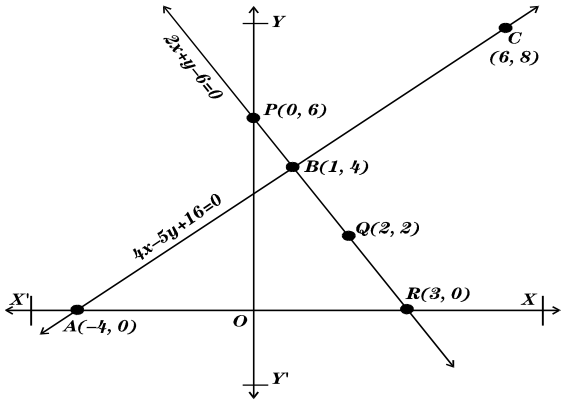
22. In fig.,a square OABC is inscribed in a quadrant OPBQ. If OA = 20 cm, find the area of the shaded region. (use $\pi = 3.14$)



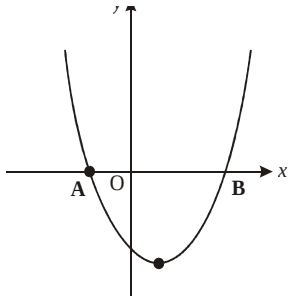
23. A spiral is made up of successive semicircles, with centre alternately at A and B, starting with centre at A, of radii 0.5 cm, 1.0 cm, 1.5 cm, 2.0 cm, . . ….. as shown in fig. What is the total length of such a spiral made up of thirteen consecutive semicircles?(Take π=$\frac{22}{7}$)



24. Observe the graph given below and state whether triangle ABC is scalene, isosceles or equilateral. Justify your answer. Also find its area.



25. The diagram shows the graph of $y = x^2 - 2x - 8$. The graph crosses the x -axis at the point A, and has a vertex at B.



(a) Factorize: $x^2 - 2x - 8$. (b) Write down the coordinates of each of these points A and B.

Section - D

26. A cylindrical bucket 32cm high and with radius of base 18cm, is filled with sand. This bucket is emptied on the ground and a conical heap of sand is formed. If the height of the conical heap is 24cm, find the radius and slant height of the heap.

Or

The radii of the ends of a bucket 45cm high are 28cm and 7cm. find its volume and the total surface area.

27. A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

28. The angle of elevation of the top of a building from the foot of the tower is 30° and the angle of elevation of the top of the tower from the foot of the building is 60°. If the tower is 50m high, find the height of the building.

Or

From the top of a 7m high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45°. Determine the height of the tower.

29. If the mean of the following data is 52, find the missing frequency :

Wages	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
No. of Workers	5	3	4	?	2	6	13

Also construct a cumulative frequency curve and find the median from the graph.

30. Prove that if a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points then the other two sides are divided in the same ratio.

In the given figure, ΔABC, DE || BC so that AD = 2.4 cm, AE = 32 cm and EC = 4.8 cm. Find AB.