

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 each.
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

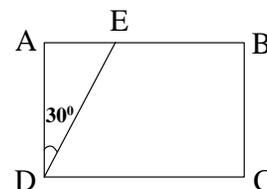
1. All the three face cards of spades are removed from a well shuffled pack of 52 cards. A card is then drawn at random from the remaining pack. Find the probability of getting a black face card.
2. Evaluate: $\sin^2 35^\circ + \sin^2 55^\circ$.
3. If one root of the quadratic equation $3x^2 + px - 4 = 0$ is 4, find the value of p.
4. Find the value of k for which the following systems of linear equations have no solution:
 $3x + y = 7$; $(a-b)x + (a+b)y = 3a + b - 2$
5. Find the value of k, if $x = \frac{2}{3}$ is a solution of equation $kx^2 - x - 2 = 0$?
6. Give the formula to calculate the volume of frustum of cone.
7. If D, E and F are the midpoints of the sides AB, BC and CA respectively of ΔABC , find the ratio of area of ΔDEF to ΔABC .
8. Find the median class of the following data :

Marks obtained	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency	8	10	12	22	30	18

9. If '1' is a zero of the polynomial $p(x) = ax^2 - 3(a-1)x - 1$, then find the value of a.
10. State fundamental theorem of arithmetic.

Section B

11. In the given figure, ABCD is rectangle with $AD = 12$ cm and $DC = 20$ cm. Line segment DE is drawn making an angle of 30° with AD intersecting AB at E. Find the lengths of DE and AE.



Or

Evaluate: $\sin^2 30^\circ \cdot \cos^2 45^\circ + 4 \tan^2 30^\circ + \frac{1}{2} \sin^2 90^\circ - 2 \cos^2 90^\circ + \frac{1}{24}$.

12. If the points A (4, 3) and B(x, 5) are on the circle with the centre O(2, 3), find the value of x.

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13. It is known that out of 750 bulbs in a box, 25 bulbs are defective. One bulb is taken out at random from the box. What is the probability that it is (i) not defective (ii) not good ?

14. Solve the following system of linear equations by Substitution method: $x - y = 0.9$; $\frac{11}{2(x+y)} = 1$.

15. The coordinates of the vertices of ΔABC are $A(4,1)$, $B(-3,2)$ and $C(0,k)$ if it is given that area of ΔABC is 12 unit^2 , find the value of k .

Or

Without using trigonometric tables, evaluate the following :
 $(\cos^2 25^\circ + \cos^2 65^\circ) + \operatorname{cosec} \theta \cdot \sec(90 - \theta) - \cot \theta \cdot \tan(90 - \theta)$

Section - C

16. If D and E are points on the sides CA and CB respectively of ΔABC right angled at C . Prove that $AE^2 + BD^2 = AB^2 + DE^2$

17. Use simple graph paper and draw the graph of the equations: $2y - x = 8$, $5y - x = 14$, $y - 2x = 1$. Obtain the vertices of the triangle so formed.

18. Prove that: $\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta} = 1 + \tan \theta + \cot \theta$.

Or

If $\sec \theta = x + \frac{1}{4x}$, then prove that $\sec \theta + \tan \theta = 2x$ or $\frac{1}{2x}$.

19. Two customers Vivek and Sakshi are visiting a particular shop in the same week (Tuesday to Saturday). Each is equally likely to visit the shop on any day as on another day. Find the probability that both will visit the shop on
(i) the same day (ii) consecutive days (iii) different days.

Or

A jar contains 14 marbles. Some of them are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is $\frac{2}{3}$. Find the number of blue marbles in the jar.

20. Solve the following quadratic equations: $6\left(\frac{x-3}{2x+1}\right) - 5\sqrt{\frac{x-3}{2x+1}} + 1 = 0$.

21. A boat goes 24 km upstream and 28 km downstream in 6 hrs. It goes 30 km upstream and 21 km downstream in $6\frac{1}{2}$ hrs. Find the speed of the boat in still water and also the speed of stream.

22. An aeroplane takes an hour less for a journey of 1200 km if its speed is increased by 100 km/h from its usual speed. Find its usual speed.

Or

Two pillars of equal heights stand on the either side of the roadway 150 m wide. From a point on the roadway between the pillars, the angles of elevation of the top of the pillars are 60° and 30° . Find the height of pillars and the position of the point.

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23. The angry Arjun carried some arrows for fighting with Bheeshm. With half the arrows he cut down the arrows thrown by Bheeshm on him and with six other arrows he killed the charioteer of Bheeshm. With one arrow each he knocked down respectively the rath, flag and bow of Bheeshm. Finally with one more than four times the square root of arrows he laid Bheeshm unconscious on an arrow-bed. Find the total number of arrows Arjun had.
24. Draw a ΔABC with side $BC = 6$ cm, $AB = 5$ cm and $\angle ABC = 60^\circ$. Construct a $\Delta A'B'C'$ similar to ΔABC such that the sides of $\Delta A'B'C'$ are $\frac{3}{4}$ of the corresponding sides of ΔABC .
25. The sum of first six terms of an AP is 42. The ratio of its 10th term to its 30th term is 1:3. Calculate the first and thirteenth term of the A.P

Section - D

26. During the medical checkup of 35 students of a class their weights were recorded as follows :

Weights	No of students
38 - 40	3
40 - 42	2
42 - 44	4
44 - 46	5
46 - 48	14
48 - 50	4
50 - 52	3

Draw both type of ogive curve from the given data. Hence obtain the median weight from the graph.

27. A tent consists of frustum of cone, surmounted by a cone. If the diameters of the upper and lower circular ends of the frustum be 14 m and 26 m respectively, the height of the frustum be 8 m and the slant height of the surmounted conical portion be 12 m. Find the area of the canvas required to make the tent, if radii of upper circular end of frustum and the base of surmounted conical portion are equal.

Or

An iron pillar has lower part in the form of right circular cylinder and the upper part in the form of right circular cone. The radius of the base of each cone and cylinder is 8cm. The cylindrical part is 240 cm high and the conical part is 36 cm high. Find the weight of the pillar if 1cm³ of iron weighs 7.5 grams.

28. Prove that in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides. Using this, solve the following :
A ladder reaches a window which is 12 m above the ground on one side of the street. Keeping its foot at the same point, the ladder is turned to the other side of the street to reach a window 9 m high. Find the width of street, if the length of the ladder is 15 m.
29. From the top of a building 100 m high, the angles of depression of the top and bottom of a tower are observed to be 45° and 60° respectively. Find the height of the tower. Also find the distance between the foot of the building and bottom of the tower.
30. Form a pair of linear equation in two variables using the following information and solve it graphically :
Five years ago, vivek was twice as old as upasna. Ten years later, vivek's age will be ten years more than upasna's age. Find their present ages. What was the age of vivek when upasna was born ?

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