CBSE SAMPLE PAPER

CLASS - X MATHEMATICS

[Time: 3hrs.] [M. M.: 80]

General Instructions:

(1) All questions are compulsory.

(2) The questions paper consists of thirty questions divided into 4 sections A, B, C, D. Section 'A' comprises of ten questions of 1 marks each, Section 'B' comprises of five questions of 2 marks each, Section 'C' comprises of ten questions of 3 marks each and Section 'D' comprises of five questions of 6 marks each.

SECTION – A

QUESTION NUMBERS 1 TO 10 CARRY ONE MARK EACH.

Q1. Without actually performing the long division write whether the rational number $\frac{249}{2^3 5^2 7^2}$ will have a terminating decimal expansion or non –terminating repeating decimal expansion.

Q2. For what value of K, the quadratic equation $2kx^2 - 40x + 25 = 0$ has equal roots.

Q3. Write the zeroes of the polynomial $x^2 - 5x - 6$.

Q4. A pair of dice is thrown once. What is the probability of getting the sum of numbers on two dice as 11.

Q5. For what value of K; 2K – 7, K + 5 and 3K + 2 are the consecutive terms of an A.P.

Q6. In a ΔABC, $\angle B = 90^o$, If AB = 2cm an AC = 3cm, write the value of Sin A.

Q7. A Point T is 13cm away from the centre of a circle. The length of the tangent drawn from T to the circle is 12cm. Write the radius of the circle?

Q8. If ΔABC ~ΔDEF such that AB = 1.2cm and DE = 1.4cm. Write the ratio of areas of ΔABC and ΔDEF.

Q9. In a circle, of radius 21cm, an arc subtends an angle of 60o at the centre. Write the length of the arc.

Q10. What is the mean of the data, whose median is 17 and mode is 15.

SECTION – B

QUESITON NUMBERS 11 TO 15 CARRY 2 MARKS EACH.

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Q11. Find the polynomial whose zeroes are $\left(3+\sqrt{2}\right)$ *and* $\left(3-\sqrt{2}\right)$.

Q12. Without using the trigonometric tables, evaluate the following-

$$\frac{11\sin 70^{o}}{7\cos 20^{o}} - \frac{4}{7}\frac{\cos 53^{o}\cos ec37^{o}}{\tan 15^{o}\tan 35^{o}\tan 55^{o}\tan 75^{o}}$$

Q13. If (-1, 3) (1, -1) and (5, 1) are the vertices of a triangle, then find the length of the median form the first vertex.

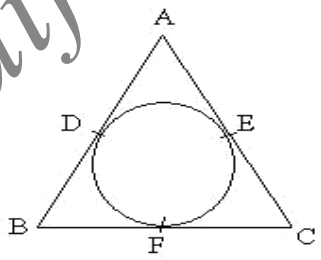
Q14. ABCD is a Trapezium; in which AB||DC and its diagonal intersects each other at point O.

prove that

$AO\ CO = BO\ DO$

OR

In figure, If AB = AC then
Prove that BE = EC



Q15. From a well shuffled pack of 52 cards two black kings two black jacks are removed. From the remaining cards a card is drawn at random. Find the probability that drawn cared is neither an ace nor a king.

SECTION – C

QUESTIONS NUMBERS 16 TO 25 CARRY MARKS EACH.

Q16. Show that $3-2\sqrt{5}$ is an irrational number

Q17. Find the roots of equations $5x^2 - 6x - 2 = 0$ by the method of completing the perfect square.

Q18. Show graphically that equation 3x – y = 2 and 6x – 2y = 4 have infinitely many solution.

Q19. The sum of n terms of an A.P. is $n^2 + 3n$. Find its 20^{th} term.

Q20. Prove that $\frac{\cos A}{1-\tan A} - \frac{\sin 2A}{CosA - SinA} = SinA + CosA$

OR

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$$\frac{1}{(\sec x - \tan x)} - \frac{1}{\cos x} = \frac{1}{\cos x} - \frac{1}{(\sec x + \tan x)}$$

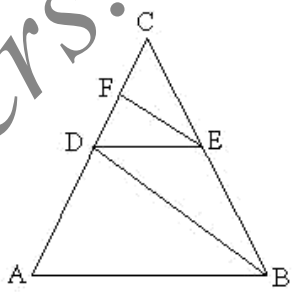
Q21. The line segment joining the points (2, 1) and (5, -8) is trisected at the points P and Q. If P lies on the line 2x – y + k = 0, find the value of k.

Q22. Draw a circle of radius 3cm. draw a pair of tangents to the circle, which are inclined to each other at an angle of 60^o.

Q23. Prove that that sum of squares of sides of the rhombus is equal to the sum of squares of its diagonals.

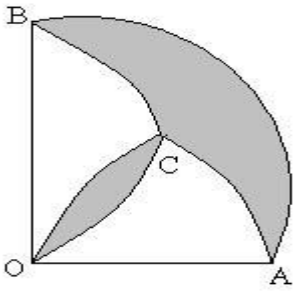
OR

In figure; AB ||DE and
BD ||EF Then prove
that $DC^2 = CF \times AC$



Q24. Two vertices of a triangle are (1, 2) and (3, 5). If the centroi find the co-ordinates of the third vertex.

Q25. In the given fig. OAB is a quadrant of radius 7cm. Find the shaded area.



D

Q26. Raghu and Mohan jointly finish a piece of work in 15 days. When they work separately, Raghu takes 16 days less than the number of days taken by Mohan to finish the same piece of work. Find the number of days taken by Mohan to finish the work.

OR

Rs.9000 was divided equally among a certain number of persons. Had there been 20 more persons each would have got Rs.160 less. Find the original number of persons.

Q27. From the top and foot of a tower of 40m high; the angle of elevation of the top of alight house is found to be 30o and 60o respectively. Find the height of the light house. Also

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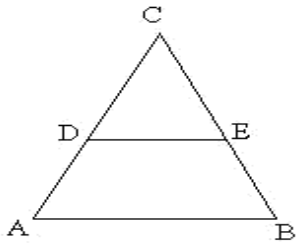
find the distance of the top of the light house from the foot of the tower.

Q28. If a line is drawn parallel to one side of a triangle prove that the other two sides are divided in the same ratio. Using the above;
Prove the following in the given figure if $\angle A = \angle B$ and
DE ||AB; Prove that AD = BE



Q29. A toy is in the form of a cone mounted on a hemisphere. The diameter of the base of the cone of the cons is 7cm and the height of the toy is 15.5cm. Find the surface are of the toy
(use $\pi = \frac{22}{7}$)

OR

An iron pillar has some part in the form of a right circular cylinder and remaining in the form of a right circular cone. The radius of the base of each of cone and cylinder is 8cm. the cylindrical part is 240cm high and the conical part is 36cm high. Find the weight of the pillar if one cubic cm. of iron weight 7.8 grams.

Q30. If the median of the distribution given below is 28.5. Find the values of x and y.

Class Interval	Frequency
0-10	5
10-20	x
20-30	20
30-40	15
40-50	y
50-60	5
Total	60

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