

CBSE MIXED TEST PAPER-25

FINAL TERM EXAMINATION

CLASS - IX MATHEMATICS

[Time : 3hrs.]

[M. M.: 80]

General Instructions:

1. All questions are compulsory.
2. The question paper consists of 30 question divided into 4 sections A, B, C, D. Section – A consist of 10 questions of 1 mark each, Section – B comprises of 5 questions of 2 marks each, Section – C comprises of 10 questions of 3 marks each. Section – D consists of 5 questions of 6 marks each.
3. Section – A is to be answered in one word or one sentence or as per exact requirement.
4. there is no overall choice, however internal choices have been provided in one question of 2 mark each, three questions of 3 marks each and two questions of 6 marks each. You have to attempt only one alternative in all such questions.

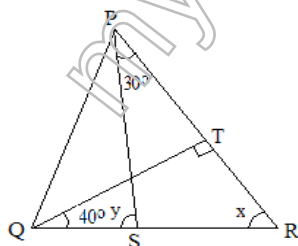
SECTION - A

Q1. Write a number whose decimal expansion is non-terminating and non-recurring?

Q2. Write a binomial of degree 30.

Q3. If $x = 2, y = 1$ is a solution of the equation $7x + Py = 2$, find P?

Q4. In figure. If $QT \perp PR$ $\angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$, find x and y.



Q5. What is the maximum number of common points when two circles meet?

Q6. What is the perimeter of an equilateral triangle of area $2\sqrt{3}$ cm²?

Q7. Write the curved surface areas of a cone of diameter 14 cm and slant height 9 cm.

Q8. Three cubes each of side 5 cm are joined end to end. Find the surface area of the resulting cuboid.

Q9. Write the mode for the following series:

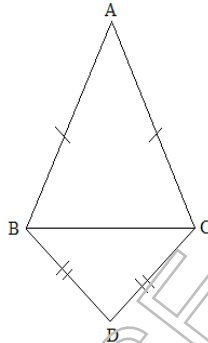
2.5, 2.3, 2.2, 2.2, 2.4, 2.2, 2.7, 2.7, 2.5, 2.3, 2.2, 2.6

Q10. What is the sum of all the possible outcomes of a trial?

SECTION - B

Q11. Rationalize the denominator: $\frac{1}{9+3\sqrt{2}}$

Q12. In figure, ABC and DBC are two isosceles triangles on the same base BC. Show that $\angle ABD = \angle ACD$.



Q13. The median of the observations 11, 12, 14, 18, $x + 2$, $x + 4$, 30, 35, 41 arranged in ascending order is 24. Find the value of x .

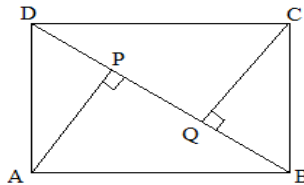
Q14. Show that each angle of a rectangle is a right angle.

OR

In figure, ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C on diagonal BD. Show that:

(1) $\triangle APB \cong \triangle CQD$

(2) $AP = CQ$



Q15. One card is drawn from a well-shuffled deck of 52 cards. Find the probability of drawing

(1) 2 of spades

(2) 10 of a black suit

SECTION - C

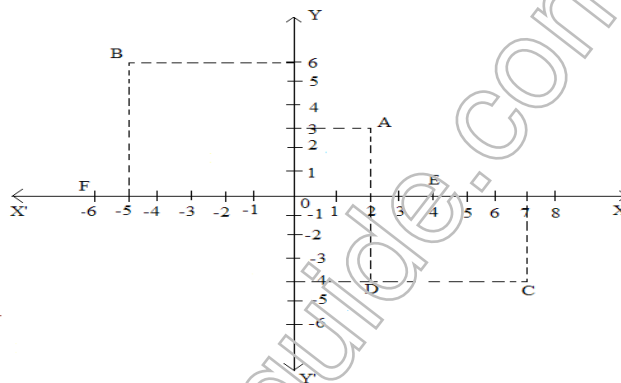
Q16. Factories: $x^3 - 10x^2 - 53x - 42$

OR

Factories: $(3x + 4y - 5z)^3 + (-2x + 3z - 3y)^3 + (2z - x - y)^3$

Q17. Looking at the graph, write the following:

- (1) the co-ordinates of the point C
- (2) the abscissa of the point A
- (3) the ordinate of the point B
- (4) the point identified by the co - ordinates (2, -4)
- (5) what is the name of horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane



Q18. Give the geometric representation of $2x + 7 = 0$ as an equation

- (i) in one variable
- (ii) in two variables

(Do this question on your answer sheets)

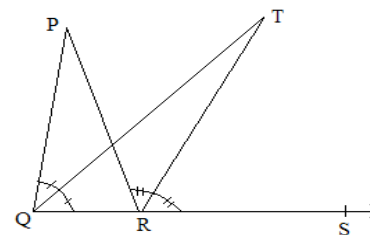
Q19. The capacity of a closed cylindrical vessel of height 1 m is 15.4 l. how many square meters of metal sheet would be needed to make it?

OR

A heap of wheat is in the form of a cone whose diameter is 10.5 m and height is 3m. find its volume. The heap is to be covered by canvas to protect it from rain. Find the area of the canvas required.

Q20. in figure, the side QR of ΔPQR is produced to a point S. if the bisectors of $\angle PQR$ and $\angle PRS$

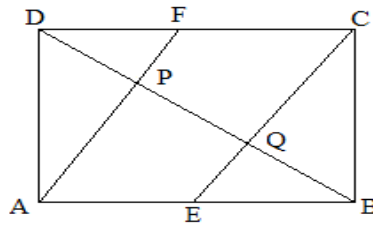
meet at a point T. then prove that $\angle QTR = \frac{1}{2} \angle QPR$.



OR

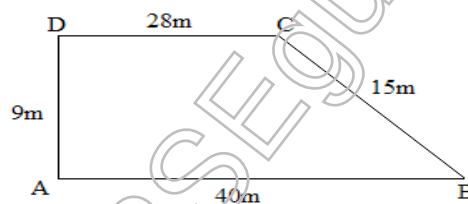
If a transversal intersects two lines such that the bisectors of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

Q21. In a parallelogram ABCD, E and F are the mid – points of sides AB and CD respectively. Show that the line segments AF and EC trisect the diagonal BD.



Q22. Construct a triangle ABC whose perimeter is 13 cm and $\angle B = 60^\circ$, $\angle C = 45^\circ$

Q23. In figure, ABCD is a field in the form of quadrilateral whose sides are indicated in the figure. If $\angle DAB = 90^\circ$, find the area of the field.



Q24. A circular park of radius 20 m is situated in a colony. Three boys Rahul, Rohit and Nitin are sitting at equal distance on its boundary each having a toy telephone in his hands to talk each other. Find the length of the string of each phone.

Q25. The percentage of marks obtained by a student in the monthly unit tests are given below:

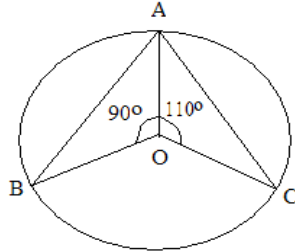
Unit test	Percentage of marks obtained
I	58
II	64
III	76
IV	62
V	85

Find the probability that the student gets:-

- (1) A first class i.e. at least 60% marks.
- (2) Marks between 70% and 80%.
- (3) A distinction i.e. 75% or above.

SECTION - D

Q26. Prove that the angle subtended by an arc at centre is double the angle subtended by it at any point on the remaining part of the circle. Using this theorem, find $\angle BAC$. If A, B and C are three points on a circle such that the angles subtended by the chords AB and AC at the centre O are 90° and 110° respectively.



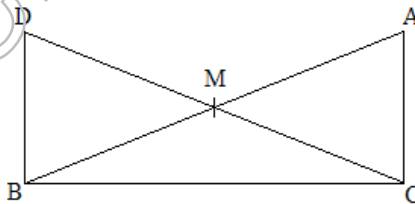
Q27, a solid cylinder has total surface area of 462 sq. cm. its curved surface area is one - third of its total surface area, find the volume of the cylinder. (Take $\pi = \frac{22}{7}$)

OR

- A hemispherical bowl is made of steel, 0.25 cm thick. The inner radius of the bowl is 5 cm. find the outer curve surface area of the bowl.
- The floor of a rectangular hall has a perimeter 250 m. if the cost painting the four walls at the rate of Rs 10 per m² is Rs 15, 000; find the height of the hall.

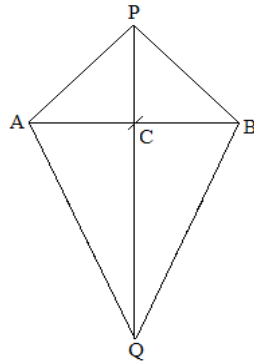
Q28. In right triangle ABC, right angled at C, M is the mid - point of hypotenuse AB. C is joined to M and produced to a point D such that DM = CM. point D is joined to point B. show that

- $\triangle AMC \cong \triangle BMD$
- $\angle DBC$ is right angle
- $\triangle DBC \cong \triangle ACB$
- $CM = \frac{1}{2} AB$



OR

In figure, AB is a line segment. P and Q are points on opposite sides of AB such that each of them is equidistant from the points A and B. show that the line PQ is the perpendicular bisector of AB.



- Q29. (a) Show that if the diagonals of a quadrilateral bisect each other at right angles, then it is a rhombus.
(b) If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection, prove that the chords are equal.
- Q30. Draw histogram of the weekly pocket expenses of 125 students of a school given below:

Weekly pocket expense (in Rs.)	Number of students
10-20	10
20-30	15
30-50	40
50-60	25
60-90	30
90-100	5