



CBSE SAMPLE QUESTION PAPER
CLASS-X
MATHEMATICS [TERM-II]

Time : 2 Hrs.

Maximum Marks : 40

General Instructions :

- (i) The question paper consists of 14 questions divided into 3 sections A, B, C.
- (ii) All questions are compulsory.
- (iii) Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
- (iv) Section B comprises of 4 questions of 3 marks each. Internal choice has been provided in one question.
- (v) Section C comprises of 4 questions of 4 marks each. An internal choice has been provided in one question. It contains two case study based questions.

Section A

1. Two concentric circles are of radii 5 cm and 3 cm. Find the length of the chord of the larger circle which touches the smaller circle. [2]

OR

Two concentric circles of radii a and b where $a > b$. Find the length of a chord of the larger circle which touches the other circle.

2. Ramkali saved Rs 5 in the first week of a year and then increased her weekly saving by Rs 1.75. If in the n th week, her weekly savings become Rs 20.75, find n . [2]

3. Three cubes of a metal whose edges are in the ratio 3:4:5 are melted and converted into a single cube whose diagonal is $12\sqrt{3}$ cm. Find the edges of the three cubes. [2]

4. Construct the cumulative frequency distribution of the following distribution : [2]

Class	12.5 – 17.5	17.5 – 22.5	22.5 – 27.5	27.5 – 32.5	32.5 – 37.5
Frequency	2	22	19	14	13

5. A tree breaks due to a storm and the broken part bends so that the top of the tree touches the ground making an angle of 30° with it. The distance between the foot of the tree to the point where the top touches the ground is 8 m. Find the height of the tree. [2]

6. Consider the following distribution of daily wages of 50 workers of a factory. [2]

Daily wages (in Rs.)	100-120	120-140	140-160	160-180	180-200
Number of workers	12	14	8	6	10

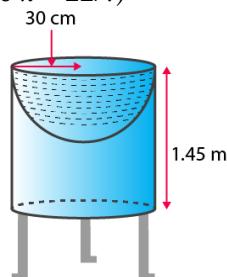
Find the mean daily wages of the workers of the factory by using an appropriate method.

OR

The mean of n observations is \bar{x} , if the first term is increased by 1, second by 2 and so on. What will be the new mean?

Section B

7. Let s denote the semi-perimeter of a triangle ABC in which $BC = a$, $CA = b$, $AB = c$. If a circle touches the sides BC , CA , AB at D, E, F, respectively, prove that $BD = s - b$. [3]
8. The sum of 4th and 8th terms of an A.P. is 24 and the sum of the 6th and 10th terms is 44. Find the first three terms of the A.P. [3]
9. Mayank made a bird-bath for his garden in the shape of a cylinder with a hemispherical depression at one end, as shown in the figure. The height of the cylinder is 1.45 m, and its radius is 30 cm. Find the total surface area of the bird-bath. (Take $\pi = 22/7$) [3]



10. Draw a circle with the help of a bangle. Take a point outside the circle. Construct the pair of tangents from this point to the circle. [3]

OR

Draw a circle of radius 5 cm. Marks a point A which is 8 cm away from its centre O, construct the tangents AB and AC. Measure the lengths of AB and AC.

Section C

11. A train travels a distance of 480 km at a uniform speed. If the speed had been 8 km/h less, then it would have taken 3 hours more to cover the same distance. What is the speed of the train? [4]
12. A toy is in the form of a cone radius 3.5 cm mounted on a hemisphere of same radius. If the total height of the toy is 15.5 cm, find the total surface area of the toy. Use $\pi = 22/7$ [4]

OR

A toy is in the form of a cone surmounted on a hemisphere of common base of diameter 7 cm. If the height of the toy is 15.5 cm, find the total surface area of the toy. Use $\pi = 22/7$

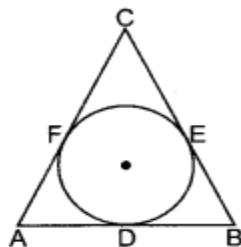
13. **CASE STUDY:**

Varun has been selected by his School to design logo for Sports Day T-shirts for students and staff. The logo design is as given in the figure and he is working on the fonts and different colours according to the theme. In given figure, a circle with centre O is





inscribed in a ΔABC , such that it touches the sides AB, BC and CA at points D, E and F respectively. The lengths of sides AB, BC and CA are 12 cm, 8 cm and 10 cm respectively.



- A. Find the length of AD
- B. If radius of the circle is 4cm, Find the area of ΔOAB
14. John and Priya went for a small picnic. After having their lunch Priya insisted to travel in a motor boat. The speed of the motor boat was 20 km/hr. Priya being a Mathematics student wanted to know the speed of the current. So she noted the time for upstream and downstream. [4]



She found that for covering the distance of 15 km the boat took 1 hour more for upstream than downstream.

- A. Let speed of the current be x km/hr. then speed of the motorboat in upstream will be
- B. What is the relation between speed distance and time?