CBSE Class 10 Maths Sample Paper

General Instructions:

i. All questions are compulsory.

ii. The question paper consists of 30 questions divided into four sections A, B, C and D.

iii. Section A contains 6 questions of 1 mark each. Section B contains 6 questions of 2 marks each. Section C contains 10 questions of 3 marks each. Section D contains 8 questions of 4 marks each.

iv. There is no overall choice. However, an internal choice has been provided in four questions of 3 marks each and three questions of 4 marks each. You have to attempt only one of the alternatives in all such questions.

v. Use of calculators is not permitted.

### Section A: Each Question Carries 1 Mark.

1. Find the coordinates of the point on y-axis which is nearest to the point $(-2, 5)$.

2. If Sin A = 3/5, Find the value of $2 + 2 \tan^2 A$.

3. If the HCF of 65 and 117 is expressible in the form of 65 m - 117, then find the value of m.

4. If the common difference of an A.P. is 3, then find $a_{20} - a_{15}$.

5. Find area of the circle, if radius is 10 cm.

6. Find the value(s) of k, if the quadratic equation $5x^2 - kx + 6 = 0$

Section B: Each Question Carries 2 Marks.

1. The zeros of a quadratic polynomial are -10 and 6. Find the polynomial.

2. Find the nature of the roots of the following quadratic equation: $10x^2 - 7x + 13 = 0$.

3. Solve the following system of linear equations by substitution method: $2x - y = 2$ and $x + y = 10$

4. Determine if the points (1, 5), (2, 3) and (-2, -11) are collinear.

5. Find the 30th term of the A. P: 10, 7, 4, ……..

6. A ball is chosen from the bag that contains 30 balls numbered from 1 to 30. What is the probability that the ball chosen will have a number that is divisible by 3?

Section C: Each Question Carries 3 Marks.

1. Show that exactly one of the numbers n, n + 2 or n + 4 is divisible by 3.
2. You pick a card from a standard deck. What is the probability that the card will be a number card less than 7?
3. Use Euclid's division lemma to show that the square of any positive integer is either of form 3z or 3z + 1 for some integer z.
4. Seven times a two digit number is equal to four times the number obtained by reversing the order of its digits. If the difference of the digits is 3, determine the number.
5. Check whether (5, - 2), (6, 4) and (7, - 2) are the vertices of an isosceles triangle.

6. In the following figure, if LM || CB and LN || CD, prove that AM/MB = AN/AD
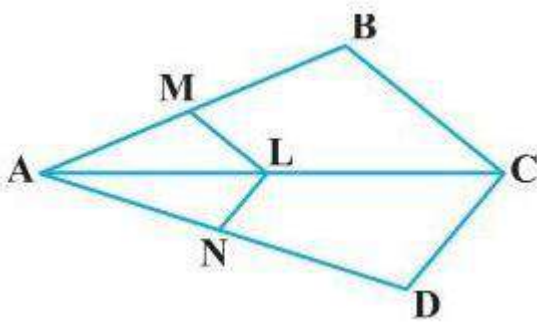
OR

A car has two wipers which do not overlap. Each wiper has a blade of length 25 cm sweeping through an angle of 115°. Find the total area in cm² cleaned at each sweep of the blades.

7. ABC is an isosceles triangle with AC = BC. If AB² =2AC², prove that ΔABC is right triangle.

8. If Sujen gives Rs. 500 to Kavita, she becomes twice as rich as her. If Kavita gives Rs. 100 to Sejen, she would become five times as rich as her! How much money do they each have presently?

9. Prove that $(\tan \theta + \cot \theta)^2 = \sec^2 \theta + \cosec^2 \theta$

Section D: Each Question Carries 4 Marks.

1. A fez, the cap used by the Turks, is shaped like the frustum of a cone. If its radius on the open side is 10 cm, radius at the upper base is 4 cm and its slant height is 15 cm, find the area of material used for making it.

2. Building A and building B are on horizontal ground. The angle of elevation of the top of building A from that of the lower building B is 15°. Building A is 100 m in height and B is 80 m in height. Find the distance between both the buildings.
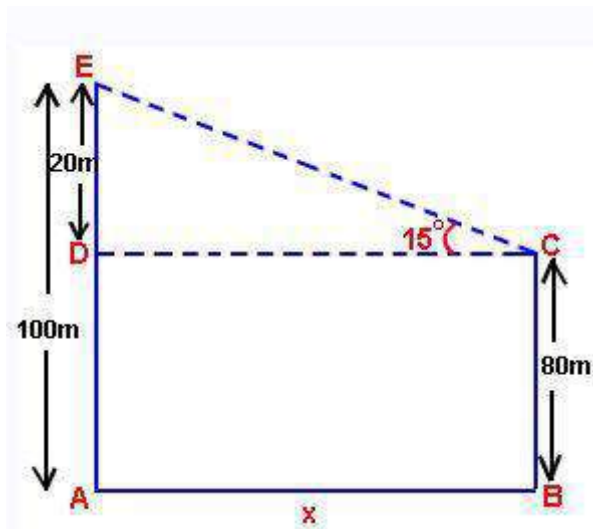
3. Check whether the equation $5x^2 – 6x – 2 = 0$ has real roots and if it has, find them by the method of completing the square. Also verify that roots obtained satisfy the given equation.

OR

A train travelling at a uniform speed for 360 km would have taken 48 minutes less to travel the same distance if its speed were 5 km/hour more. Find the original speed of the train.

4. An AP consists of 37 terms. The sum of the three middle most terms is 225 and the sum of the last three terms is 429. Find the AP

5. Show that in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.

OR

Prove that the ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.

6. Using any one construction method, divide a line segment AB = 12 cm in the ratio 4 : 3.

7. Prove that $\dfrac{Tan\ A}{Sec\ A-1} - \dfrac{1+Tan\ A}{Sec\ A+1} = 2\ \text{cosec}\ \theta$

8. The following distribution shows the daily pocket allowance of children of a locality. The mean pocket allowance is rs. 18. Find the missing frequency k.

Daily pocket allowance (in rs.)	11–13	13–15	15–17	17–19	19–21	21–23	23–25
Number of children	3	6	9	13	k	5	4