

# CBSE Class 9 Maths Sample Paper

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## General Instruction:

- (i) All questions are compulsory.
- (ii) This question paper contains **30** questions divided into four Sections A, B, C and D.
- (iii) **Section A** comprises of 6 questions of **1 mark** each. **Section B** comprises of 6 questions of **2 marks** each. **Section C** comprises of 10 questions of **3 marks** each and **Section D** comprises of 8 questions of **4 marks** each.
- (iv) There is no overall choice. However, an internal choice has been provided in two questions in 1 mark each, two questions in 2 marks each, 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

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## Section A

(Questions 1 to 6 carry 1 mark each)

1. Evaluate:  $\frac{81}{36}x^2 - \frac{y^2}{25}$

2. Find the value of  $k$ ,  $(x - 1)$  is the factor of  $x^2 + 9x - 5 + k$

3. Simplify:  $\frac{9^{\frac{2}{3}}}{9^{\frac{1}{5}}}$

OR

Find the value of  $m$  if  $343^m = \frac{49}{7^m}$

4. The coordinate of two points are  $P(4,6)$  and  $Q(-5,-7)$  then, find (abscissa of  $P$ ) – (abscissa of  $Q$ ).

5. If the length of three sides of a triangle is  $25\text{ cm}$ ,  $20\text{ cm}$  and  $15\text{ cm}$ , then find the area of the triangle.

OR

Find the class mark of the interval  $100 - 110$ .

6. If the length of the longest rod that can be placed in a room of dimensions  $20m \times 20m \times 10m$ .

**Section B**

**(Questions 7 to 12 carry 2 marks each)**

7. Find the simplest form of  $0.\overline{78}$  in fraction.

**OR**

If  $x = 9 - 4\sqrt{5}$ , then  $\left(x + \frac{1}{x}\right) = ?$

8. If each side of an isosceles triangle is  $3\sqrt{2} \text{ cm}$  and its base is  $8 \text{ cm}$ , then find the area of an isosceles triangle.

9. Find the mean of the first nine prime numbers.

10. Is  $(x + 1)$  is a factor of the polynomial  $x^{997} + x^{886} + x^{775} + x^{654} + x^{113} + 1$ ?

11. In supplementary angle, if first angle is  $20^\circ$  less than second angle, then the larger angle is equal to?

**OR**

If the four angles of a quadrilateral are in the ratio  $3 : 5 : 6 : 10$ . Find its smallest angle.

12. If the area of the circle is  $841\pi \text{ cm}^2$ , then find the length of the longest chord of the circles.

**Section C**

**(Questions 13 to 22 carry 3 marks each)**

13. If  $\frac{\sqrt{11}-1}{\sqrt{11}+1} = a - b\sqrt{11}$ , then find the value of  $a$  and  $b$ .

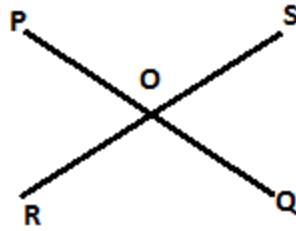
14. If  $x^4 + \frac{1}{x^4} = 34$  ( $x > 1$ ), then find the value of  $x + \frac{1}{x}$ .

15. In complementary angle, if one angle is three times of other angle, then find the larger angle.

**OR**

In given figure, lines PQ and RS intersect each other at point O. If  $\angle POR : \angle ROQ$  is

$5 : 15$ . Then, find the angle of  $\angle SOQ$ .



16. If the area of the triangle  $BGC$  is 28 square units and the centroid of the triangle is  $G$ . Then, find the area of the triangle  $ABC$  is equal to.

17. If each side of an equilateral triangle is  $6\sqrt{3}$  cm, then, find the altitude of an equilateral triangle.

18. The radius of the sphere is 7 cm. It is melted and drawn into a wire of radius 0.3 cm. Find the length of the wire.

19. If one diagonal of the rhombus is five times than other diagonal and also sum of two diagonals is 180 cm. Then, find the area of the rhombus.

OR

If one of the angles of the base is  $15^\circ$  less than angle of the vertex of an isosceles triangle, then find the angle at each base.

20. If one chord of the circle is given by 18.0 cm, then find the radius of this circle.

21. If the internal opposite angle is  $51^\circ$ , then find the external angle of a cyclic quadrilateral.

OR

Find the value of  $\sqrt{15 + 10\sqrt{2}} + \sqrt{15 - 10\sqrt{2}}$

22. Find the median of the following data:

Class	3	6	9	12	15	18
Frequency	6	12	9	14	24	11

OR

If a number selected at random from the number 6, 7, ..... , 50, then find the probability of getting a prime number?

**Section D**

**(Questions 23 to 30 carry 4 marks each)**

23. If  $x = \frac{\sqrt{7}+\sqrt{6}}{\sqrt{7}-\sqrt{6}}$  and  $y = \frac{\sqrt{7}-\sqrt{6}}{\sqrt{7}+\sqrt{6}}$ , find  $x + y = ?$

24. Find the remainder when the polynomial  $P(x) = 2x^3 - 5x^2 + 3x + 7$  is divided by  $(2x + 1)$ .

25. If  $x + y + z = 6$  and  $x^2 + y^2 + z^2 = 18$ , then find  $x^3 + y^3 + z^3 - 3xyz$ .

**OR**

When  $t^2 - 1$  exactly divides the polynomial  $P(t) = a_1t^4 + a_2t^3 + a_3t^2 + a_4t + a_5$  then prove that  $a_1 + a_3 + a_5 = a_2 + a_4 = 0$

26. If the measure of an angle is  $60^\circ$  and the perimeter of a rhombus is  $48 \text{ cm}$ , then find the area of the rhombus.

27. The volume of the cylinder is  $750\pi \text{ cm}^3$  and its height is  $30 \text{ cm}$ . Find radius and total surface area.

**OR**

If the sum of the parallel sides of a trapezium is  $70 \text{ cm}$  and area of the trapezium is  $350 \text{ cm}^2$ , then find the height of the trapezium.

28. From a point P,  $40 \text{ cm}$  away from the centre of a circle, a tangent PT of length  $32 \text{ cm}$  is drawn. Then, find the radius of the circle.

29. If the perimeter of an isosceles triangle is  $64 \text{ cm}$  and its equal sides are  $20 \text{ cm}$ . Then, find the area of an isosceles triangle.

**OR**

If a number is selected at random from the number  $14, 15, 16, \dots, 77$  then find the probability of the number is divisible by 7.

30. The mean of the following frequency distribution is 8. Then, find  $p$ .

Class	3	5	7	9	11	13
Frequency	6	8	15	p	8	4