

**Sample paper 6**  
**Class IX**  
**Subject: Mathematics**

**Time : 1hr**

**M.M 40**

**General Instructions:**

1. All questions are compulsory.
2. The paper consists of 17 questions divided into 4 section A, B , C and D . Section A comprises of 6 questions of 1mark each. Section B comprises of 2 questions of each 2 marks. Section C comprises of 6 questions of 3 marks each. Section D comprises of 3 questions of 4 marks each.
3. There is no over all choice in this question paper. Although internal choices have been provided in the same question.

**Section A (6 marks)**

1. Choose correct length of a chord which is at a distance of 4 cm from the centre of a circle of radius 5 cm.  
  
(i) 3  
(ii) 6  
(iii) 8  
(iv) 10
  
2. Product of  $4\sqrt{6}$  and  $3\sqrt{24}$  is  
(a)  $\sqrt{72}$   
(b)  $12\sqrt{24}$   
(c)  $\sqrt{144}$   
(d) 144
  
3. Points having same Abscissa and ordinate will lie in which quadrant  
(a) 1  
(b) 2 only  
(c) 3 only  
(d) 2 or 3 only

$$12\sqrt{(x^4)^{\frac{1}{3}}}$$

4. Evaluate and pick right answer  
(a)  $x^{1/12}$   
(b)  $x^{1/144}$   
(c)  $x^{1/9}$   
(d)  $x^{1/4}$

5. On which axes, do the given points lie?

(i) (6, 0)

(ii) (0,-6)

(a) X,Y

(b) 0,X

(c) Y,0

(d) 0,0

6. Simplify and choose the correct answer below

$$\frac{6^{2/3} \times \sqrt[3]{6^7}}{\sqrt[3]{6^6}}$$

(i) 6

(ii)  $6^{1/3}$

(iii)  $6^{2/3}$

(iv)  $6^{2/4}$

### Section B (4 marks)

7. If  $x + 2k$  is a factor of  $f(x) = x^5 - 4k^2x^3 + 2x + 2k + 3$  find  $k$ .

8. If the area of an equilateral triangle is  $16\sqrt{3} \text{ cm}^2$ , then find the perimeter of the triangle.

### Section C (18 marks)

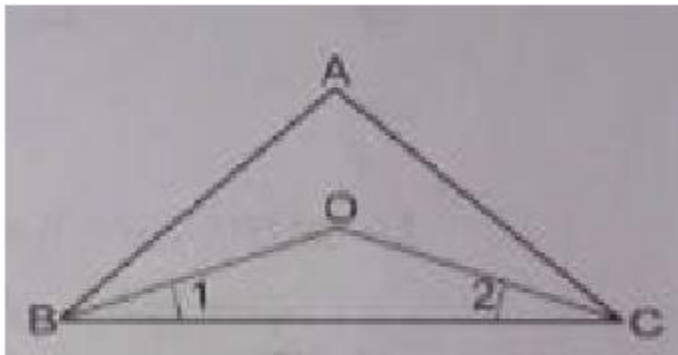
9. Simplify by rationalizing the denominator  $(4\sqrt{3} + 5\sqrt{2})/(\sqrt{48} + \sqrt{18})$ .

10. If  $a = -2$  and  $b = -1$  then  $a^{-b} - b^a = ?$

11. Find the distance of the point  $P(4,3)$  from origin.

12. In fig. below, if the bisector of angles  $\angle B$  and  $\angle C$  of a triangle  $ABC$  meet at a point  $O$ , then prove that

$$\angle BOC = 90^\circ + \frac{1}{2} \angle A$$



13. The three vertices of a rectangle ABCD are A(2, 2), B(-3,2) and C(-3,5). Plot these points on a graph paper and find the area of rectangle ABCD.

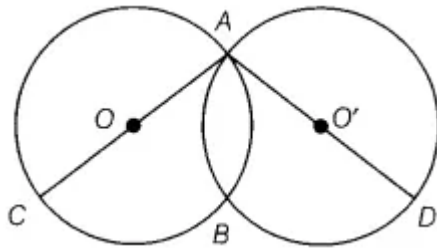
14. Find the value of

$$\frac{3^{40} + 3^{39} + 3^{38}}{3^{41} + 3^{40} - 3^{39}}$$

**Section D (12 marks)**

15. The cost of a ball pen is Rs 5 less than half of the cost of a fountain pen. Write this statement as a linear equation in two variables.

16. In the given figure, two circles intersect at A, B and AC, AD are respectively the diameters of the circles. Prove that the points C, B and D are collinear.



17. A point O inside a rectangle ABCD is joined to the vertices. Prove that the Sum of the areas of a pair of opposite triangles so formed is equal to the sum of the areas of other pair of triangles.