

**KENDRIYA VIDYALAYA GACHIBOWLI , GPRA CAMPUS, HYD-32**  
**SAMPLE PAPER TEST 03 FOR TERM-2 EXAM (2021-22)**

**SUBJECT: MATHEMATICS**  
**CLASS : IX**

**MAX. MARKS : 40**  
**DURATION: 2 HRS**

**General Instructions:**

1. The question paper consists of 14 questions divided into 3 sections A, B, C.
2. Section A comprises of 6 questions of 2 marks each. Internal choice has been provided in two questions.
3. Section B comprises of 4 questions of 3 marks each. Internal choice has been provided in one question.
4. 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**

**Questions 1 to 6 carry 2 marks each.**

1. If  $p(t) = t^3 - 3t^2 + t - 4$ , then find  $p(1) + p(-1)$ .

**OR**

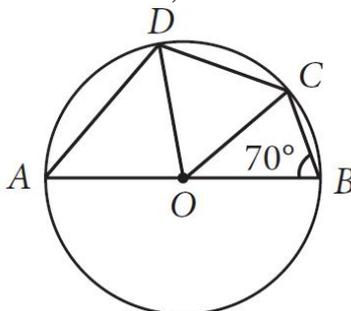
Factorise:  $6x^2 + 7x - 10$ .

2. If angles A, B, C and D of the quadrilateral ABCD, taken in order, are in the ratio 3 : 7 : 6 : 4, then find the angles.
3. An integer is chosen at random from the first 200 positive integers. Find the probability that the integer is divisible by 11.
4. Find the diameter of the sphere, whose total surface area is  $616 \text{ cm}^2$ .

**OR**

The curved surface area of a cone is  $154 \text{ cm}^2$ . If its radius is  $x \text{ cm}$  and slant height is  $7 \text{ cm}$ . Find the value of  $20x$ .

5. The record of a weather station shows that out of the past 365 consecutive days, its weather forecasts were correct 190 times. What is the probability that it was not correct on a given day?
6. In the given figure, AB is diameter of the circle,  $OC = DC$  and  $\angle OBC = 70^\circ$ , then find  $\angle ODA$



**SECTION – B**

**Questions 7 to 10 carry 3 marks each.**

7. Factorise:  $\frac{36}{25}x^4 - \frac{y^4}{16}$ .

**OR**

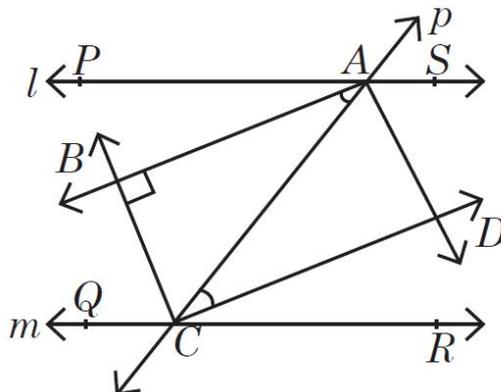
If  $x$  and  $y$  be two positive real numbers such that  $4x^2 + y^2 = 40$  and  $xy = 6$ , then find the value of  $2x + y$ .

8. A right triangle, with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm and 5 cm respectively. Find the ratio of the total surface areas of two cones so formed.
9. Construct a triangle with base length 5 cm, the sum of other two sides is 7 cm and one base angle is  $60^\circ$ .
10. Factorise:  $x^3 - 12x^2 + 47x - 60$ .

### SECTION – C

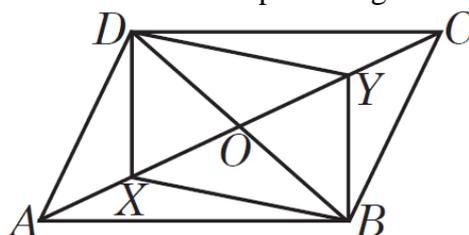
Questions 11 to 14 carry 4 marks each.

11. Two parallel lines  $l$  and  $m$  are intersected by a transversal  $p$  (see figure). Show that the quadrilateral formed by the bisectors of interior angles is a rectangle.



OR

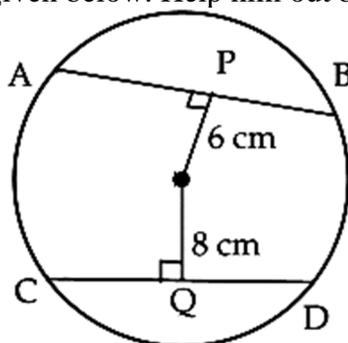
In the given quadrilateral ABCD, X and Y are points on diagonal AC such that  $AX = CY$  and BXDY is a parallelogram. Show that ABCD is a parallelogram.



12. Without actual division, prove that  $x^4 + 2x^3 - 2x^2 + 2x - 3$  is exactly divisible by  $x^2 + 2x - 3$

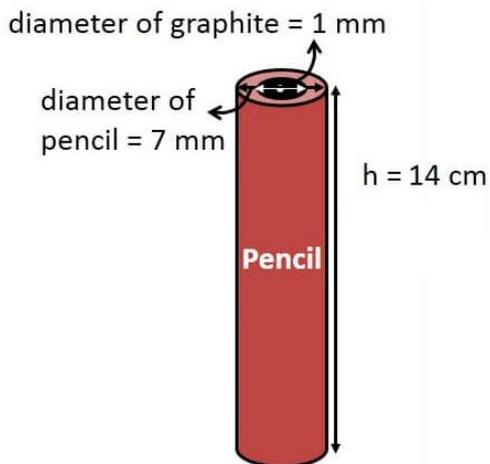
### CASE STUDY QUESTIONS

13. Mohan draws a circle of radius 10 cm with the help of compass and scale. He also draws two chords, AB and CD in such a way that AB and CD are 6 cm and 8 cm distance from the centre O. Now he has some doubts that are given below. Help him out by answering these questions:



- (i) Find the length AB.  
 (ii) Find the length CD.

14. Raju is a student of Class IX. He wants to complete his Biology note book to submit to the teacher. He was searching for pencil to draw some figures from the tissue chapter. He went to shop and purchase a lead pencil consists of a cylinder of wood with a solid cylinder of graphite filled in the interior. The diameter of the pencil is 7 mm and the diameter of the graphite is 1 mm. The length of the pencil is 14 cm.



- (i) Find the volume of the graphite in  $\text{mm}^3$ .
  - (ii) Find the volume of the wood in  $\text{mm}^3$ .
- .....