MATHEMATICS MOCK TEST

Class: IX | Set: 27

Time: 1 Hour 30 Minutes | Written Marks: 35 | Viva: 5 | Total: 40 Marks

NAME: _____ **ROLL NO:** _____

SECTION A

(1 Mark Each)

1. State Euclid's first axiom: "Things which are equal to the same thing are ..."
2. Find the surface area of a sphere of radius 7 cm.
3. If two lines intersect each other, then the vertically opposite angles are ...
4. What is the class mark of the interval $100 - 130$?
5. How many dimensions does a solid have according to Euclid?

SECTION B

(2 Marks Each)

6. State any two of Euclid's postulates.
7. In the given figure, lines AB and CD intersect at O. If $\angle AOC + \angle BOE = 70^\circ$ and $\angle BOD = 40^\circ$, find $\angle BOE$.
8. Find the volume of a sphere whose surface area is 154 cm^2.
9. The following data represents the number of children in 10 families: $2, 4, 3, 2, 1, 3, 5, 2, 1, 2$. Find the mode and median.
10. An isosceles triangle has perimeter 30 cm and each of the equal sides is 12 cm. Find the area of the triangle using Heron's formula.

SECTION C

(3 Marks Each)

11. If a point C lies between two points A and B such that $AC = BC$, then prove that $AC = \frac{1}{2}AB$. Explain by drawing the figure.
12. In the figure, if $PQ \parallel RS$, $\angle MXQ = 135^\circ$ and $\angle MYR = 40^\circ$, find $\angle XMY$.
13. Twenty-seven solid iron spheres, each of radius r and surface area S are melted to form a sphere with surface area S'. Find the radius r' of the new sphere and the ratio of S and S'.
14. The following table shows the number of students participating in different sports:

Sport	Cricket	Football	Hockey	Tennis	Badminton
No. of Students	25	18	12	10	15

Represent the data using a Bar Graph.

SECTION D

(4 Marks Each)

15. Question 15: Draw a Histogram and a Frequency Polygon on the same graph for the following distribution:

Marks	0–10	10–20	20–30	30–40	40–50	50–60
Frequency	5	10	15	20	12	8

16. Question 16: Prove that the sum of the angles of a triangle is 180°. Use this property to find the value of x if the angles of a triangle are $(2x - 5)^\circ$, $(x + 10)^\circ$, and $(x + 15)^\circ$.

VIVA VOCE

(5 Marks)

- **Euclid's Geometry:** What is the difference between an 'Axiom' and a 'Postulate'?
- **Lines and Angles:** What are 'Supplementary Angles'? Give an example.
- **Spheres:** If the radius of a sphere is tripled, by what factor does its volume increase?
- **Statistics:** When is a frequency polygon preferred over a histogram?
- **General:** In which book did Euclid collect all known mathematical arrangements of his time?