

**CHAPTER TEST: INTRODUCTION TO EUCLID'S GEOMETRY**

Mathematics | Class IX (2026/EUCLID/09/LongAns/003)

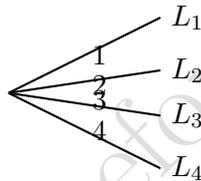
Time: 1 Hour

Max. Marks: 25

**LONG ANSWER QUESTIONS: EUCLID'S GEOMETRY**  
**SET – 3 (Axioms and Definitions)**

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1. If a point  $C$  is the midpoint of a line segment  $AB$ , prove that every line segment has one and only one midpoint. (Use the method of contradiction).
2. Solve the equation  $x - 15 = 25$  using Euclid's axioms. State which axiom you are using at each step. Also, provide a geometric example for the same axiom.
3. If  $P, Q$ , and  $R$  are three points on a line, and  $Q$  lies between  $P$  and  $R$ , prove that  $PR - QR = PQ$ . State the Euclid's Axiom that allows the subtraction of equals.
4. In the figure, if  $\angle 1 = \angle 3$  and  $\angle 2 = \angle 4$  and  $\angle 3 = \angle 4$ , then show that  $\angle 1 = \angle 2$ . Mention the Euclid's Axiom used to reach this conclusion.



5. Describe the hierarchical transition of geometric entities from Solids to Points as per Euclid. Mention the dimensions associated with each stage (Solid  $\rightarrow$  Surface  $\rightarrow$  Line  $\rightarrow$  Point).