CHAPTER TEST: INTRODUCTION TO EUCLID'S GEOMETRY
Mathematics | Class IX (2026/EUCLID/09/LongAns/001)
Time: 1 Hour **Max. Marks: 25**

LONG ANSWER QUESTIONS: EUCLID'S GEOMETRY
SET – 1 (Logic and Geometric Proofs)

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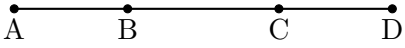
1. Prove that "Two distinct lines cannot have more than one point in common." Use the method of contradiction and mention which Euclid's postulate/axiom is violated if the statement were false.

2. In the given figure, if $AC = BD$, then prove that $AB = CD$. Justify your answer using the relevant Euclidean Axiom.



3. Prove that an equilateral triangle can be constructed on any given line segment. State each step clearly and identify which Euclid's Postulate is being used in each step.

4. If A, B and C are three points on a line, and B lies between A and C, prove that $AB + BC = AC$. Explain which axiom supports the concept that the sum of parts equals the whole.

5. Read the following statement: "A square is a polygon made up of four line segments out of which length of three line segments are equal to the length of fourth one and all its angles are right angles."

   (a) Define the terms used in the statement which need to be defined first.

   (b) Is there any undefined term in this? If yes, what is it?