

## Worksheet: Introduction to Euclid's Geometry

Haryana State Board · Class 9 · Mathematics · 12 questions · 26 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 26

**Q1.** Is 'the whole is greater than the part' an axiom, a postulate, or a theorem? [1 mark]

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**Q2.** Which postulate lets us extend a line segment indefinitely? [1 mark]

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**Q3.** Name three undefined terms in geometry. [1 mark]

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**Q4.** How many lines can pass through (a) one given point, (b) two distinct points? [1 mark]

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**Q5.** True or false: 'Two distinct lines can intersect at more than one point.' Justify. [1 mark]

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**Q6.** If  $AB = CD$  and  $CD = EF$ , prove that  $AB = EF$ . [2 marks]

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**Q7.** If  $AB = CD$ , prove that  $AB + BC = BC + CD$ . [2 marks]

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**Q8.** If C is the midpoint of segment AB, prove that  $AC = (1/2) AB$ . [3 marks]

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**Q9.** State Euclid's Fifth Postulate and Playfair's Axiom. Show they are equivalent. [3 marks]

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**Q10.** Prove that two distinct lines cannot have more than one common point. [3 marks]

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**Q11.** Prove: If a point C lies between A and B on a line, then  $AC + CB = AB$ . Use the axioms. [4 marks]

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**Q12.** Why was Euclid's Fifth Postulate considered controversial? Briefly describe non-Euclidean geometry. [4 marks]