MATHS

BOOKS - CAMBRIDGE MATHS (KANNADA ENGLISH)

INTRODUCTION TO EUCLID'S GEOMETRY

Exercise 2.1

1. Which of the following statements are true and which are false? Give reasons for your answer.

(i) Only one line can pass through a single point.

(ii) There are infinite number of lines which pass through two distinct points.

(iii) A terminated line can be produced indefinitely on both the sides.

(iv) If two circles are equal, then their radii are equal.

(v) In given fig., $AB = PQ$ and $PQ = XY$,

then $AB = XY$.

A.

B.

C.

D.

Answer: (i) False

(ii) False

(iii) True

(iv) True

(v) True

2. Give a definition for each of the following terms. Are there other terms that need to be defined first? What are they and how might you define them ?

(i) Parallel lines

(ii) Perpendicular lines

(iii) Line Segment

(iv) Radius of a circle

(v) Square

A.

B.

C.

D.

3. Consider the two 'postulates' gives below:

(i) Given any two distinct points A and B, there exists a third point C, which is between A and

B.

(ii) There exist at least three points that are not on the same line.

Do these postulates contain any undefined terms? Are these postulates consistent? Do they follow from Euclid's postulates? Explain.
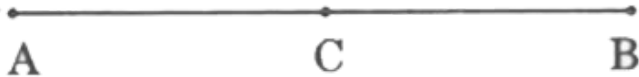
A.

B.

C.

D.

4. 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.

A   C   B

A.

B.

C.

D.

5. In question 4, point C is called a mid-point of line segment AB. Prove that every line segment has only one mid-point.

A.

B.

C.

D.

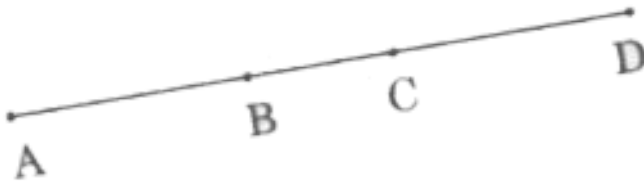**6.** In the following figure, if $\overline{AC} = \overline{BD}$, then prove that $\overline{AB} = \overline{CD}$.

A.

B.

C.

D.

7. Why is axiom 5, in the list of Euclid's axiom considered on 'universal truth'? (Note that the question is not about the fifth postulate.)

A.

B.

C.

D.

Exercise 2.2

1. How would you rewrite Euclid's fifth postulate so that it would be easier to understand?

A.

B.

C.

D.

2. Does Euclid's fifth postulate imply the existence of parallel lines? Explain .

A.

B.

C.

D.

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