

Mid-Point and Its Converse (Equal Intercept Theorem)

Chapter 12: Mid-Point and Its Converse (Equal Intercept Theorem) · Topic 1

Key Concept

If D and E are midpoints of sides AB and AC of triangle ABC, then DE is parallel to BC and $DE = \frac{1}{2}BC$.

The converse of the mid-point theorem states that if a line through the midpoint of one side is parallel to another side, it bisects the third side.

The equal intercept theorem relates to parallel lines cutting transversals into proportional segments.

These theorems are useful for proving properties of triangles and quadrilaterals, and solving related geometry problems.

Quick Revision Notes

- Mid-point theorem: DE parallel to BC, $DE = \frac{1}{2}BC$.
- D, E are midpoints of AB, AC.
- The converse: a line through one midpoint, parallel to another side, bisects the third.
- The equal intercept theorem involves parallel lines and transversals.
- These prove triangle and quadrilateral properties.
- They help solve related geometry problems.
- These are fundamental coordinate geometry theorems.
- Practice with these builds proof skills.

Practice Questions

- 1 Draw a triangle and verify the mid-point theorem.
- 2 Discuss the converse of the mid-point theorem.
- 3 Research the equal intercept theorem.
- 4 Solve a problem using the mid-point theorem.
- 5 Explain why DE is half of BC.
- 6 Create your own triangle and find its midpoints.