

Properties of a Parallelogram

Chapter 8: Quadrilaterals · Topic 1

Key Concept

These properties can each be proven using congruent triangles formed by a parallelogram's diagonal, which divides it into two triangles that can be shown congruent using the ASA or SAS criteria, alongside properties of parallel lines and transversals. Understanding these properties thoroughly is essential, since many geometry problems require using one or more of these facts to prove other results or find unknown angles and lengths within a parallelogram-based figure.

Quick Revision Notes

- Parallelogram: opposite sides equal and parallel, opposite angles equal.
- Consecutive (adjacent) angles in a parallelogram are supplementary (sum to 180°).
- Diagonals of a parallelogram bisect each other (cross at their exact midpoints).
- These properties are proven using congruent triangles formed by a diagonal.

Practice Questions

- 1 List two properties of a parallelogram.
- 2 If one angle of a parallelogram is 70° , find all the other three angles.
- 3 Explain how a parallelogram's diagonal can be used to prove its opposite sides are equal.