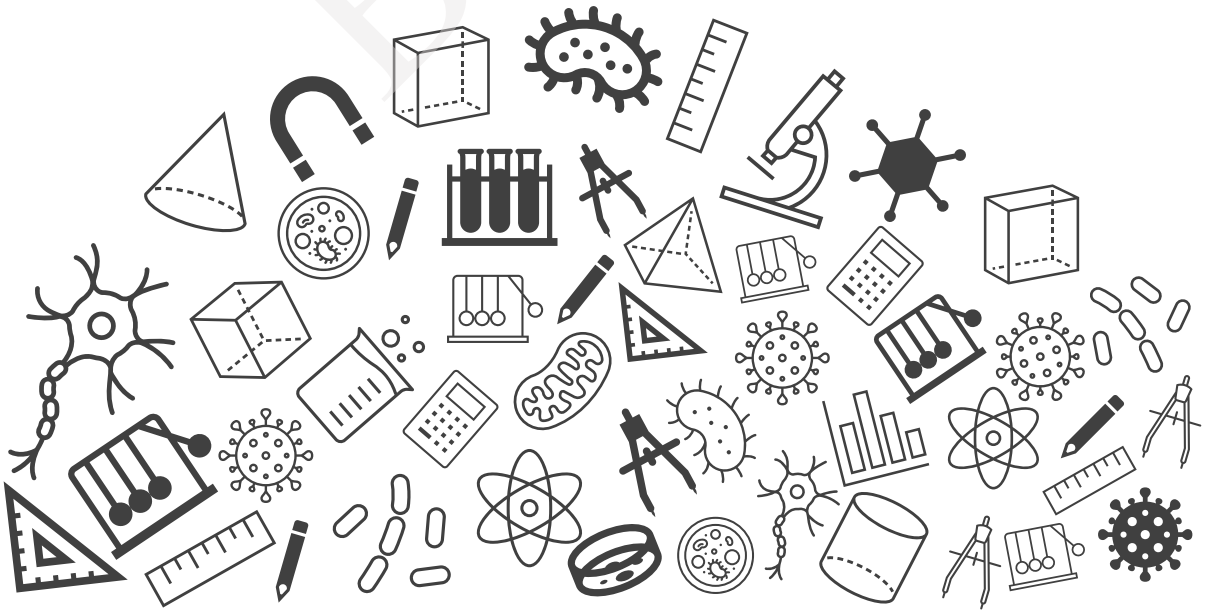
Grade 09
Mathematics Chapter Notes



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Chapter Notes

Quadrilaterals

Grade 09

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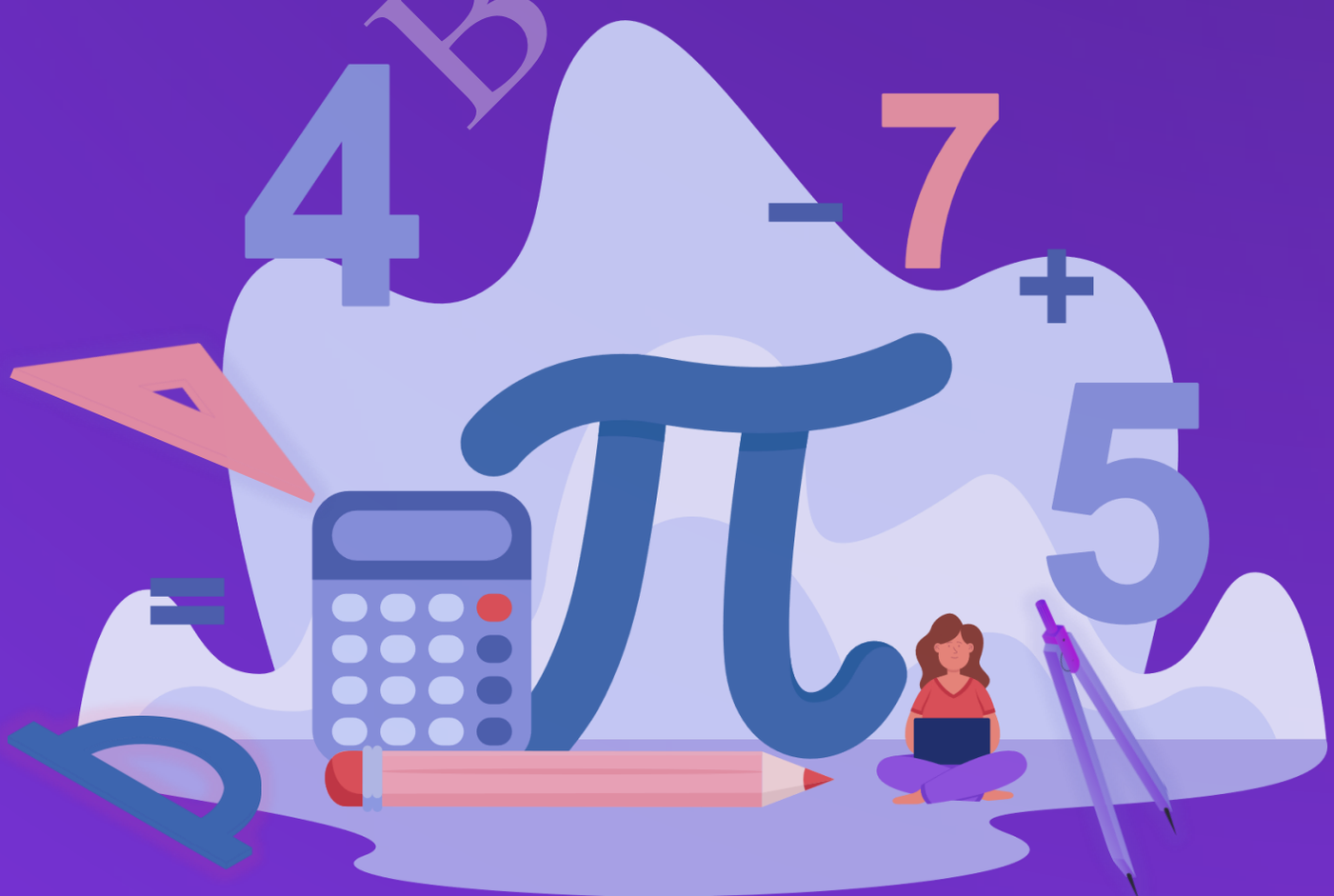

Topics to be Covered

1. Properties of Parallelogram

2. Mid-point Theorem

- 4.1 Mid-point Theorem
- 4.2 Converse of Mid-point Theorem

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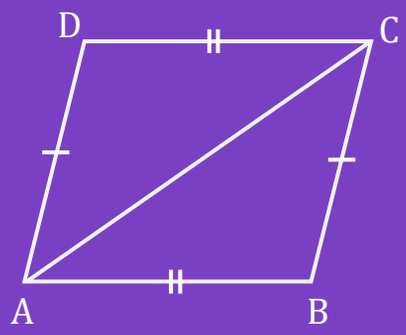
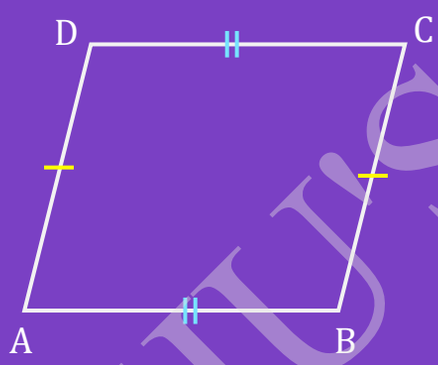
1. Properties of Parallelogram

1. A diagonal of a parallelogram divides it into two congruent triangles.
   ∴ ΔABC ≅ ΔADC

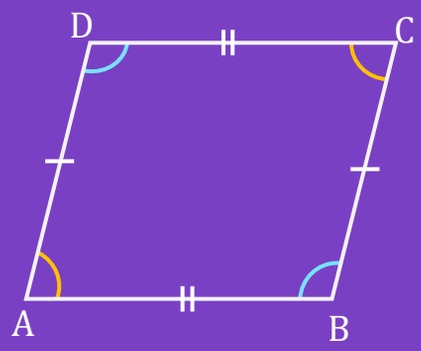


2. In a parallelogram, the opposite sides are equal.
   ∴ AB = DC and AD = BC



Conversely, if each pair of opposite sides of a quadrilateral are equal, then it is a parallelogram.
∴ If AB = DC and AD = BC, then ABCD is a parallelogram.

3. In a parallelogram, the opposite angles are equal.
   ∴ ∠ABC = ∠ADC and ∠BAD = ∠BCD



Conversely, in a quadrilateral, if each pair of opposite angles are equal, then it is a parallelogram.
∴ If ∠ABC = ∠ADC and ∠BAD = ∠BCD then ABCD is a parallelogram.

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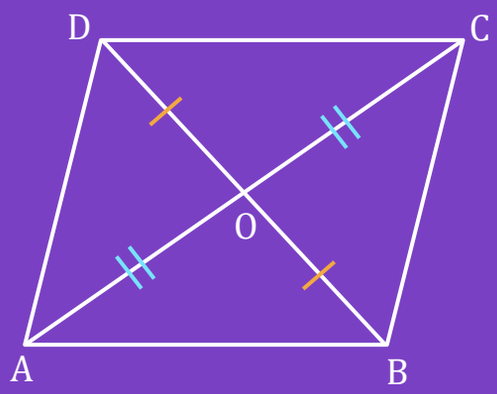
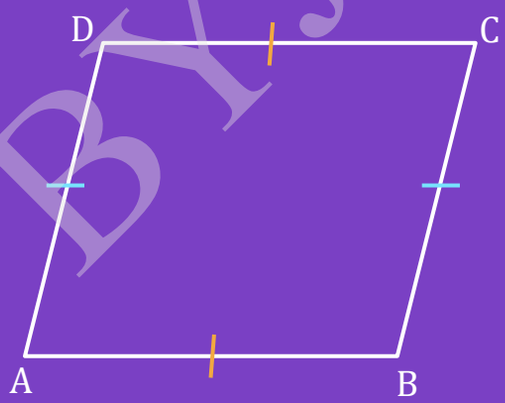
1. Properties of Parallelogram

4. The diagonals of a parallelogram bisect each other.



Conversely, if the diagonals of a quadrilateral bisect each other, then it is a parallelogram.

5. A quadrilateral is a parallelogram if a pair of opposite sides is equal and parallel.



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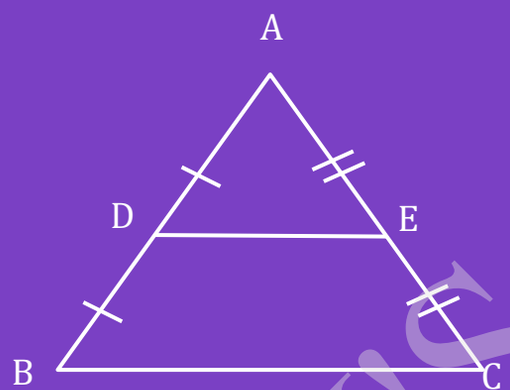
2. Mid-point Theorem

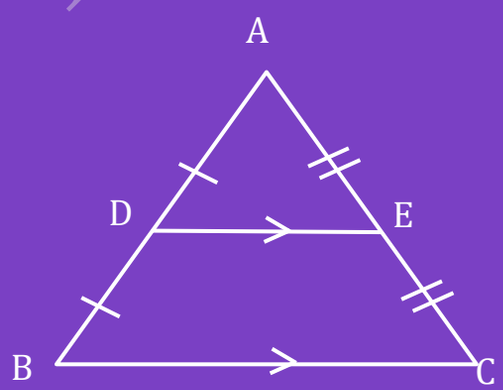
2.1 Mid-point Theorem

The line segment joining the mid-points of any two sides of a triangle is parallel to the third side and is half of it.



2.2 Converse of Mid-point Theorem

A line passing through the mid-point of a side of a triangle that is parallel to another side, bisects the third side.



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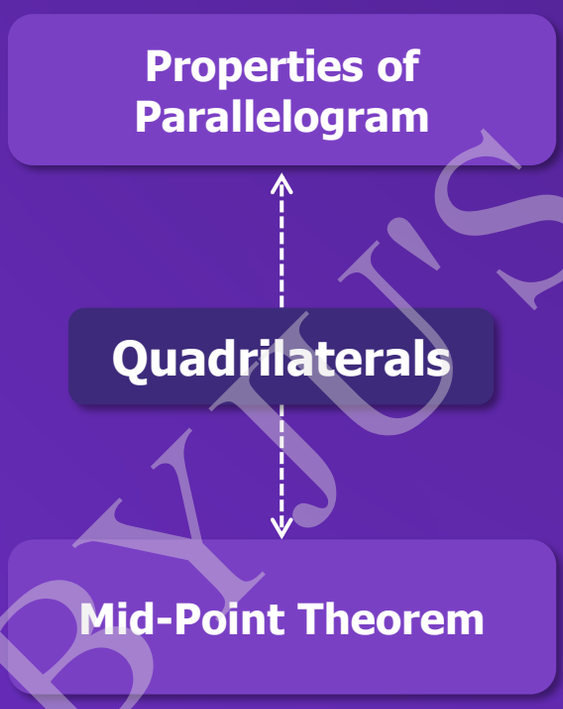
Mind Map



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