

Concept + Practice

Plane
geo →

- ① L & A (1.5)
- ② Δ's (17.5)
- ③ Quad. (2)
- ④ Polygons (1)
- ⑤ Circles (4)
- ⑥ Misc (4)

Math It X
✓ SSC syllabus It

11gm (uncomfortable)

8 approx → (10)

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Plane geometry

is a difficult topic.

* हर ques नये method से हो रहा है

Revision

- i) Complete batch video } Understanding
- ii) Class pdf } Concepts
- iii) Practice sheet } + Quer.
- iii) QRPs } Concepts
- iv) HW notes } Concepts
- v) Self notes }

Parallelogram (समांतर चतुर्भुज):

- Opposite sides are equal & parallel.
- Opposite angles are equal.
- Adjacent angles are supplementary.

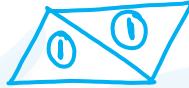


Diagonals (विकर्ण):

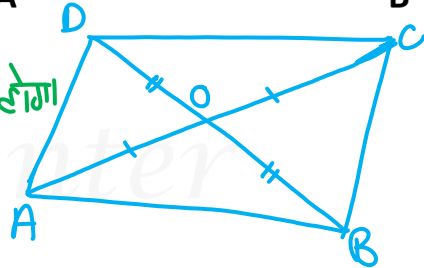
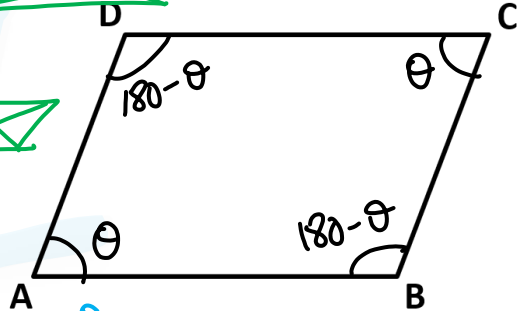
→ 2 equal parts



- bisect each other
- bisect the area
- doesn't bisect the angle.
- Are not perpendicular and not equal.
- Side-diagonal relationship ?

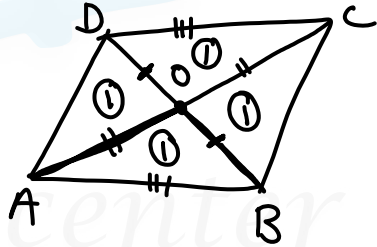
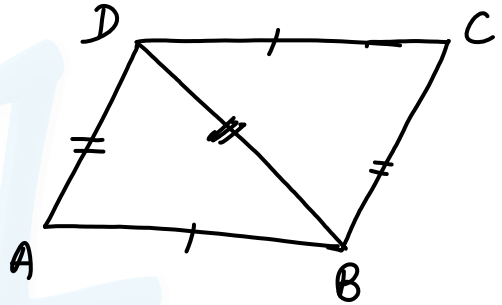


दिएका रहा होगा

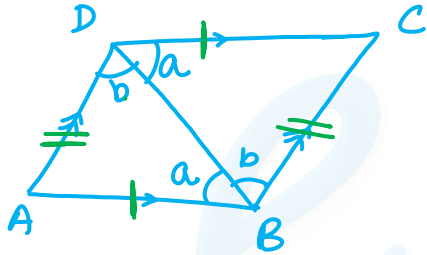


$\triangle ADB$ & $\triangle BDC$

SSS \rightarrow Congruent
 \downarrow
Area equal.



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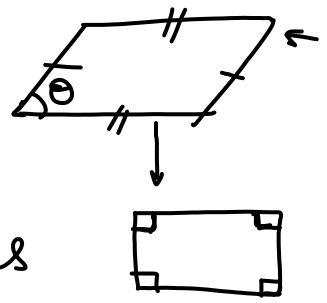
~~AD = AB~~
~~=> a = b~~

$AD \neq AB \rightarrow$ If $AD = AB$
the ABCD \rightarrow Rhombus

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Side-diagonal relationship:

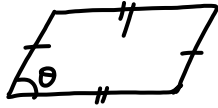
True for all //gms



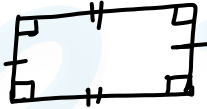
Sides	diagonals
=	⊥
⊥	=

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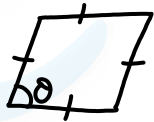
||gms



General ||gm.



||gm with $\angle's = 90^\circ$
Rectangle (आयत)



||gm with all sides equal
Rhombus (समचतुर्भुज)

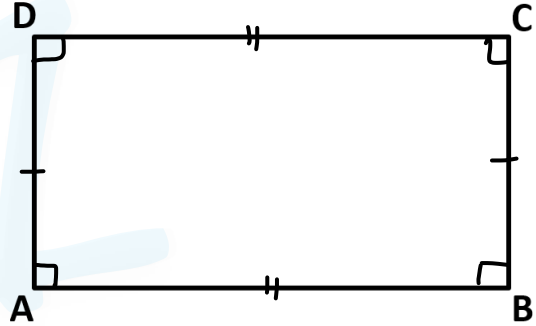


Rectangle with all sides equal
Square (वर्ग)

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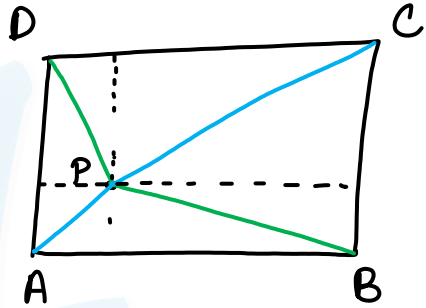
Rectangle (आयत):

- A parallelogram with \perp sides.
- All angles 90° .
- Diagonals are $=$ but not \perp
- Follows British flag theorem



Sides \neq
dia $=$

$$BP^2 + DP^2 = AP^2 + CP^2$$



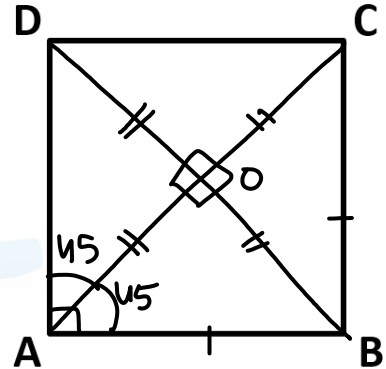
* Point P can be inside,
on & outside the rectangle

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Square (वर्ग):

- A rectangle with equal sides.
- Diagonals are equal, perpendicular and angle bisectors.

Sides \perp =
dia = \perp

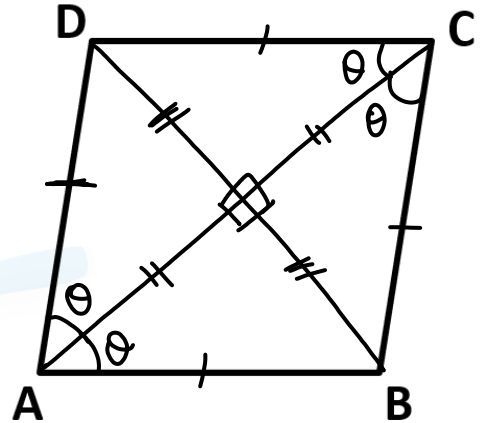


Rhombus (समचतुर्भुज):

- A parallelogram with equal sides.
- Diagonals are perpendicular, angle bisectors and unequal.

Sides \neq
 ~~\neq~~
 $=$

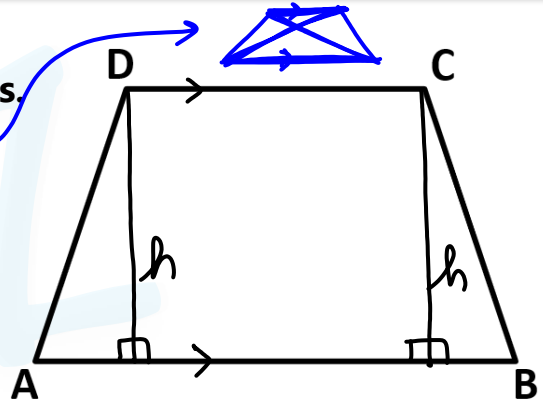
dia \neq
 \perp



Trapezium (समलम्बचतुर्भुज):

equal height/altitude

- A figure with a pair of parallel sides.
- Forms "Damru figure" on joining diagonals.
- Line joining the mid point of sides and diagonals.
- An isosceles trapezium is a cyclic quadrilateral.



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$$PQ = \frac{\text{Sum of } \parallel \text{ sides}}{2} = \frac{AB+DC}{2}$$

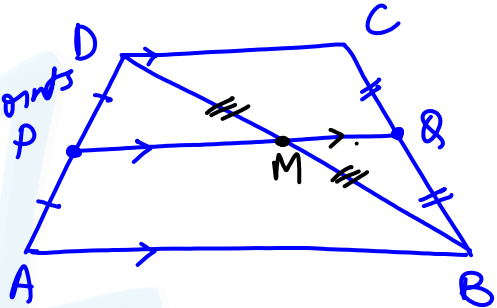
formed by joining the midpoints
 $\triangle ABD$; of non \parallel sides.

$$PM = \frac{1}{2} AB$$

$\triangle BDC$,

$$MQ = \frac{1}{2} CD$$

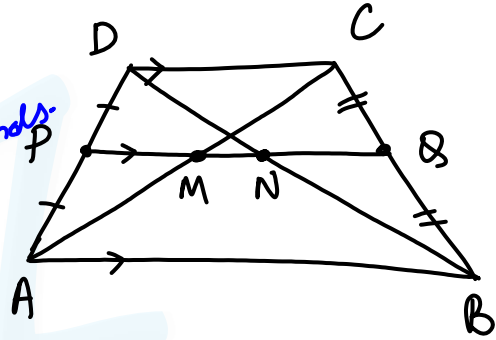
$$PQ = \frac{1}{2} (AB+CD)$$



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$$MN = \frac{\text{Diff of } \parallel \text{ sides}}{2} = \frac{AB - CD}{2}$$

M & N are mid points of diagonals



$\triangle DAB$, $PN \parallel AB \rightarrow$ Base

$$\Rightarrow PN = \frac{1}{2} AB \quad \text{--- (1)}$$

$\triangle ADC$, $PM \parallel DC \rightarrow$ Base

$$\Rightarrow PM = \frac{1}{2} DC \quad \text{--- (2)}$$

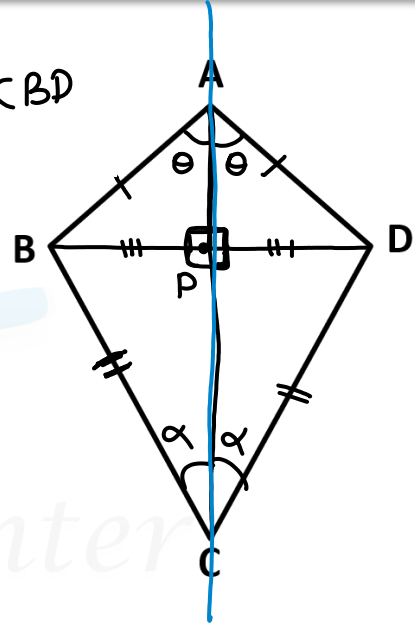
$$\text{(1)} - \text{(2)}$$

$$MN = \frac{1}{2} (AB - DC)$$

kite (पतंग):

- Figure with two pairs of equal adjacent sides.
- Made up of two isosceles triangles.
- One diagonal is on line of symmetry.
- All kites are tangential quadrilaterals.

$$\triangle ABC \cong \triangle ADC \text{ (SSS)}$$



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