Geometry Monday 3-11-13 Class Notes

# Ch. 6-6 Properties of Kites and Trapezoids.

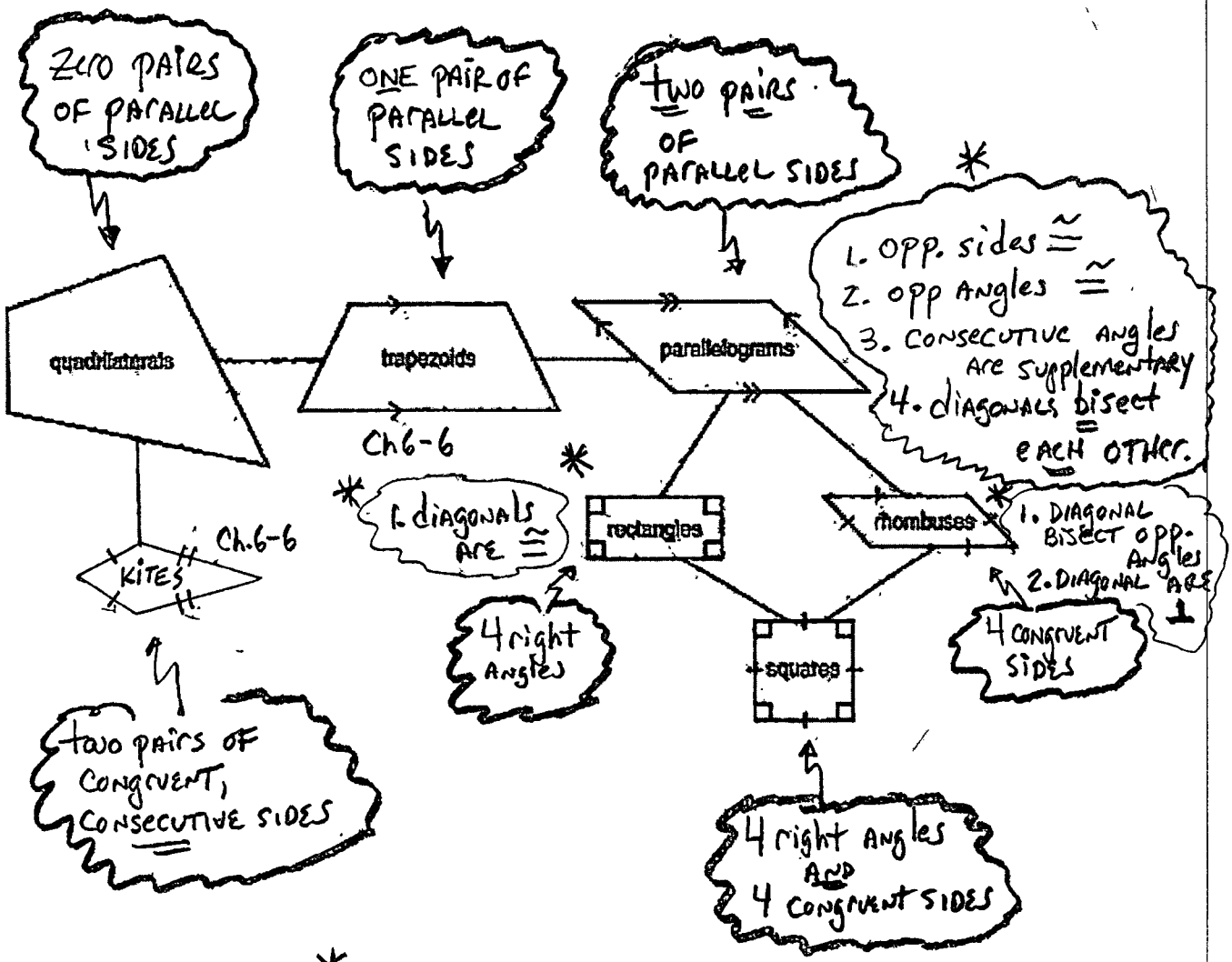
- Review — definition of quadrilateral, kites, trapezoids, and parallelograms.
  - properties of parallelograms

# REVIEW

Ch. 6-2 to 6-5 ⇒ PARALLELOGRAMS

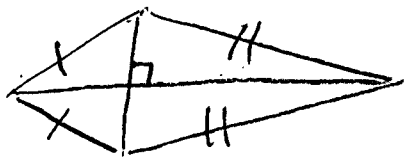
## FAMILY OF QUADRILATERALS

DEFINE

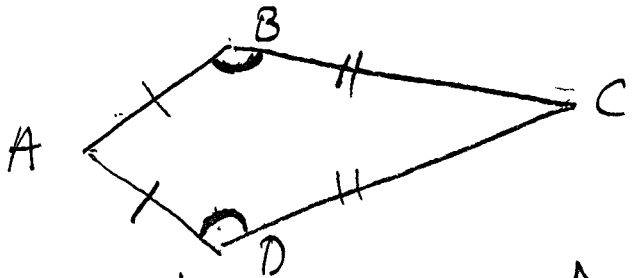



* PROPERTIES

# Properties of Kites



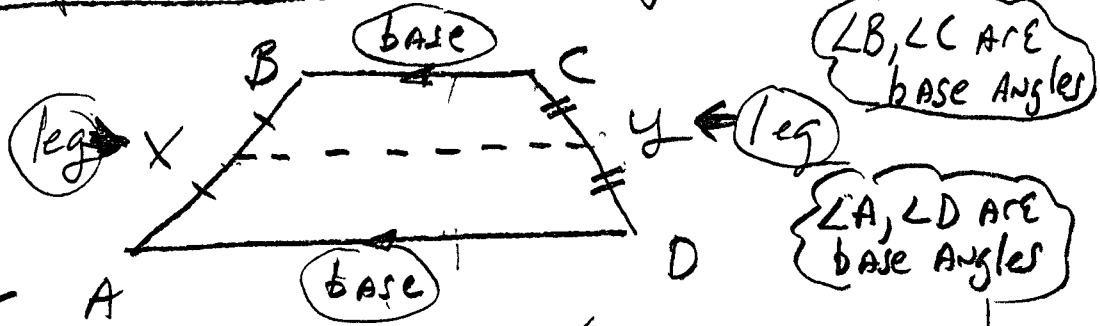
(1.) Diagonals are ⊥ (same as Rhombus)




(2) Exactly one pair of opposite angles are congruent. $\angle B \cong \angle D$ $\angle A \ncong \angle C$

The "NOT" congruent symbol

# Properties of Trapezoids




*ACT

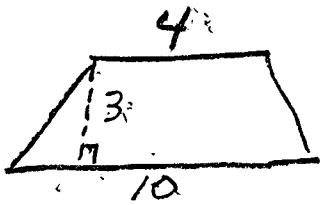
① the midsegment (line XY above) is parallel to each base and its length is $\frac{1}{2}$ the SUM of the lengths of the bases.

i.e. $\overline{XY} = \frac{1}{2}(\overline{BC} + \overline{AD})$

NOTE: the Area of A trapezoid is $\boxed{\frac{1}{2}(b_1 + b_2)h = A_{\text{trap}}}$

where h is the perpendicular distance between bases.

EX

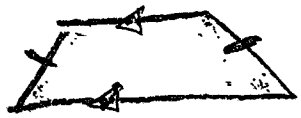



$A = \frac{1}{2}(4+10)3$

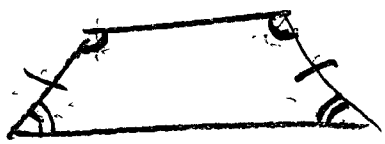
$\boxed{A = 21 \text{ units}^2}$

# Special Trapezoid:

Isosceles Trapezoid ⇒ the legs are $\cong$

(EX) 

## Properties of Isoceles Trapezoids:

① Each pair of base angles are $\cong$ 

② If one pair of base angles are $\cong$, it is an isosceles trapezoid (so you know the other pair is $\cong$ too)

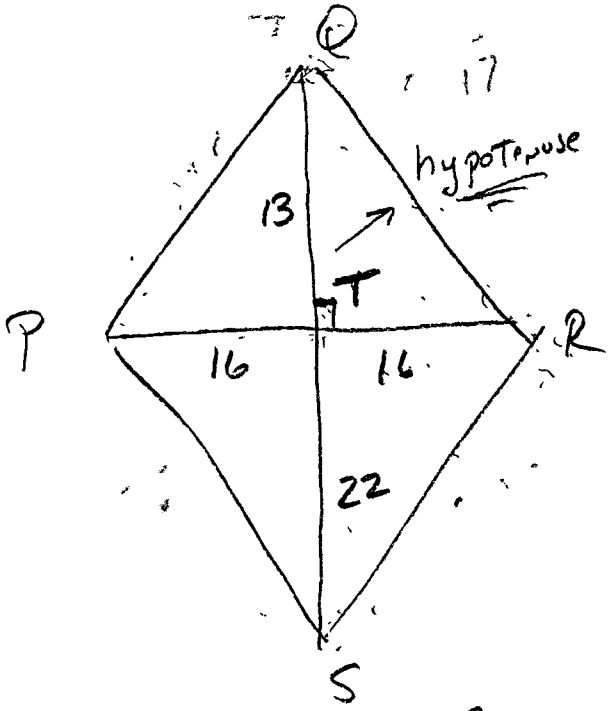
③ The diagonals are $\cong$ (same as a rectangle)

Note: if diagonals are $\cong$, it is an isoceles ⏢.

- See Examples ⇒ Pg 441-442

Ex1

Pg 440




2 yds of binding in one package for edges

Find each edge

$QR^2 = 13^2 + 16^2$

$QR^2 = 169 + 256 = 425$

$\therefore QR = \sqrt{25}\sqrt{17}$

$5\sqrt{17}$

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$RS^2 = 16^2 + 22^2$

$RS^2 = 256 + 484 = 740$

$RS = \sqrt{740} = \sqrt{4}\sqrt{185}$

$RS = 2\sqrt{185}$

$740 = 10 \cdot 74$

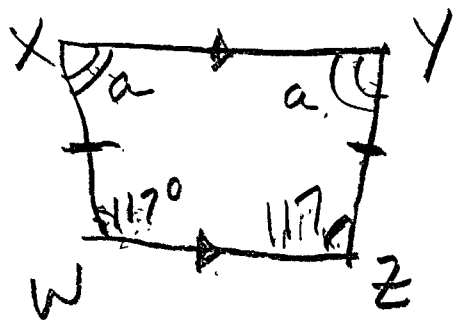
$(2)(5)(2)(37)$

$\therefore$ Edges $\Rightarrow$ (Perimeter) $10\sqrt{17} + 4\sqrt{185} \approx$ Perimeter $\approx$ 95.6 in

$36 \frac{in}{yd} \Rightarrow 72 \Rightarrow$ in 2 yds

$\therefore$ Buy 2 packages

(Ex3) PJ442 $m\angle Y$




$m\angle X + m\angle Y + m\angle W + m\angle Z = 360°$

$234 + 2a = 360$

$\frac{2a}{2} = \frac{126}{2}$

$a = 63°$