

Exterior Angle Theorem remediation: please tape the handout to pg. 185

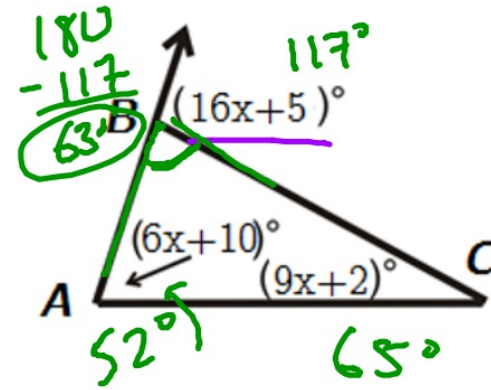
Theorem: exterior angle measure = sum of 2 remote interior angles

Find the value of x ; then find the measures of $\angle A$, $\angle C$ and $\angle ABC$

$$\underline{16x+5} = \underline{9x+2} + \underline{6x+10}$$

$$\begin{array}{r} 16x + 5 = 15x + 12 \\ -15x \quad -5 \quad -15x \quad -5 \\ \hline \end{array}$$

$$1x = 7$$



Your Turn: Now do problems a, b, and c at the bottom of p. 184

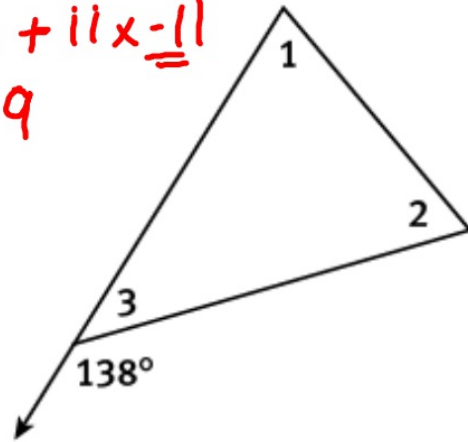
If $m\angle 2 = (10x + 2)^\circ$ and $m\angle 1 = (11x - 11)^\circ$, complete the following.

$$138^\circ = 10x + \underline{2} + 11x - \underline{11}$$

$$138 = 21x - 9$$

$$147 = 21x$$

$$7 = x$$



$$\angle 1 = 66^\circ$$

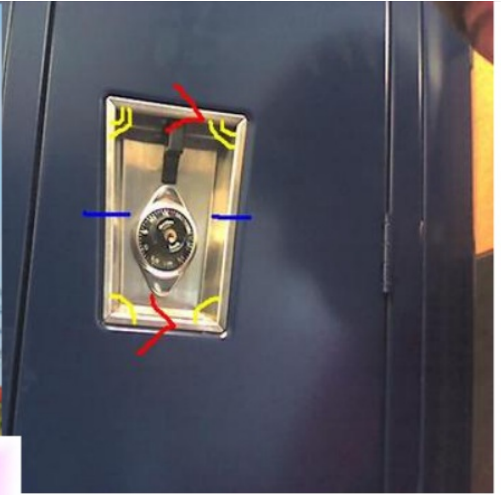
$$\angle 2 = 72^\circ$$

$$\angle 3 = 42^\circ$$

New Unit: Quadrilaterals:

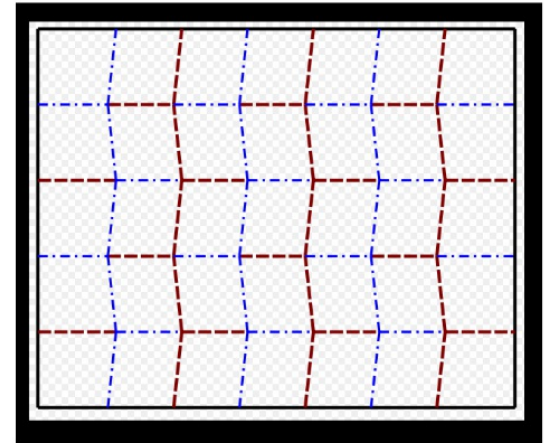
Central Question: How can we extend our knowledge of triangles to include 4-sided polygons and what properties and real-world applications do these shapes have?







Miura Fold



Solar Sails

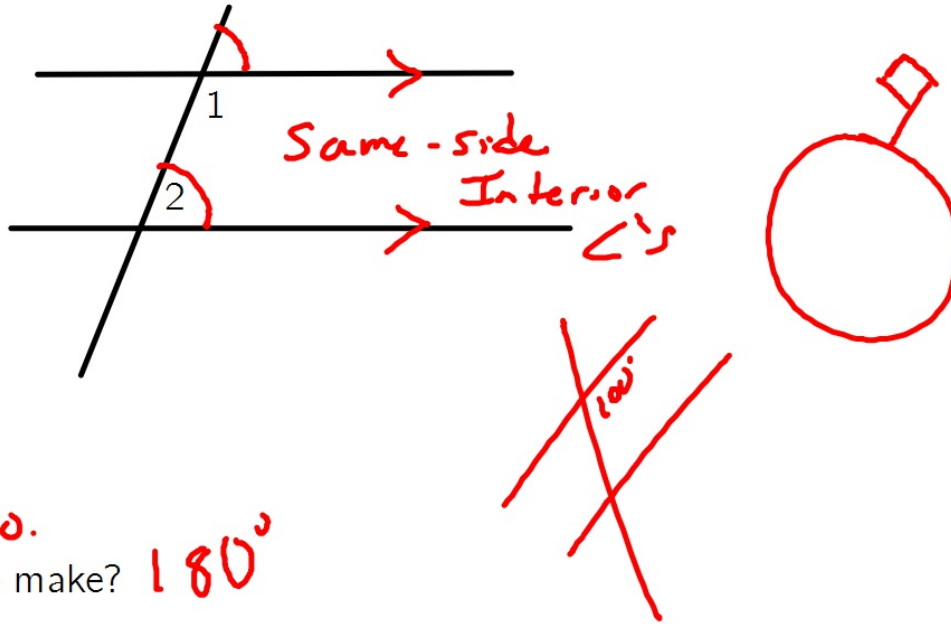
<http://www.jpl.nasa.gov/news/news.php?release=2014-277>

<https://vimeo.com/103446030>

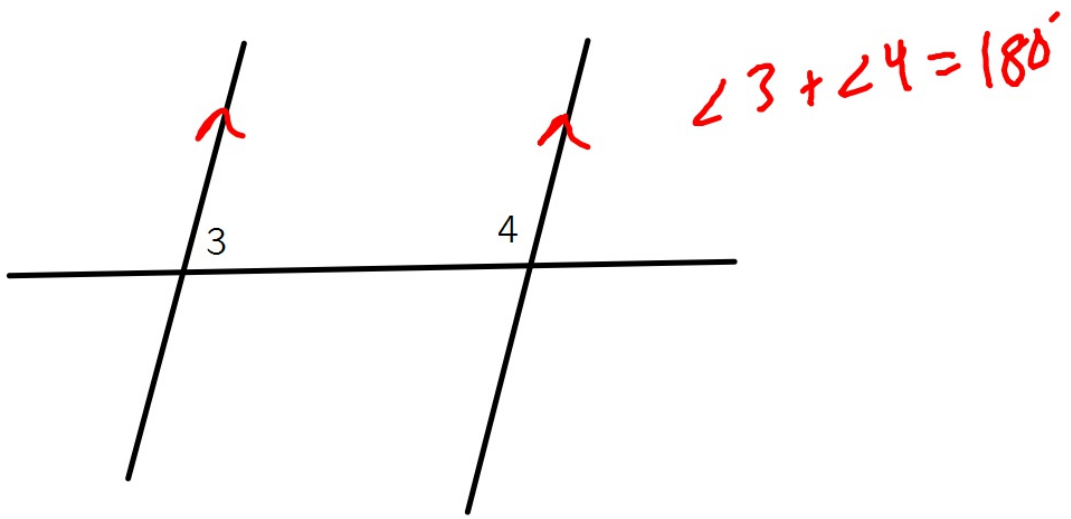
<https://www.youtube.com/watch?v=4tRRWeEqyUQ>

Parallelograms: p. 213

Review: Draw this into margin:



Is $\angle 1$ congruent to $\angle 2$? **No.**
What do $\angle 1$ and $\angle 2$ total to make? **180°**



Now read top of p. 213 and complete #1ab

"consecutive"

A parallelogram is a quadrilateral with both pairs of opposite sides parallel. For the sake of brevity, the symbol \square can be used for parallelogram.

1. Given $\square KATY$ as shown.

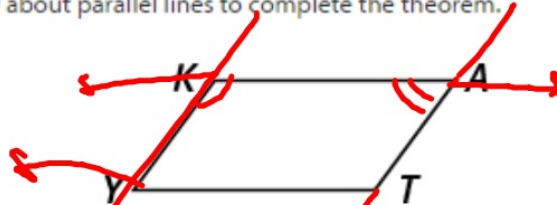
a. Which angles are consecutive to $\angle K$?



$\angle Y$ $\angle A$

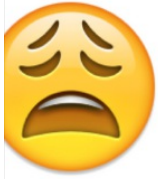
"one right after the other"

b. Use what you know about parallel lines to complete the theorem.



Consecutive angles of a parallelogram are Supplementary.



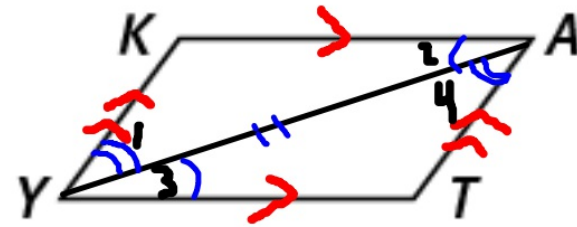


Draw diagonal YA; label the angles as shown

Given: Parallelogram KATY

Prove: $\overline{KA} \cong \overline{TY}$

Statements	Reasons
1. Parallelogram KATY.	1. Given
2. $\overline{KA} \parallel \overline{YT}$	2. Def. of Parallelogram
3. $\overline{YA} \cong \overline{YA}$	3. Reflexive Property
4. $\angle 1 \cong \angle 4$	4. Alt. Int. Angles.
5. $\angle 2 \cong \angle 3$	5. Alt. Int. Angles.
6. $\triangle KYA \cong \triangle ATY$	6. ASA.
7. $\overline{KA} \cong \overline{TY}$	7. CPCTC



Also by CPCTC...



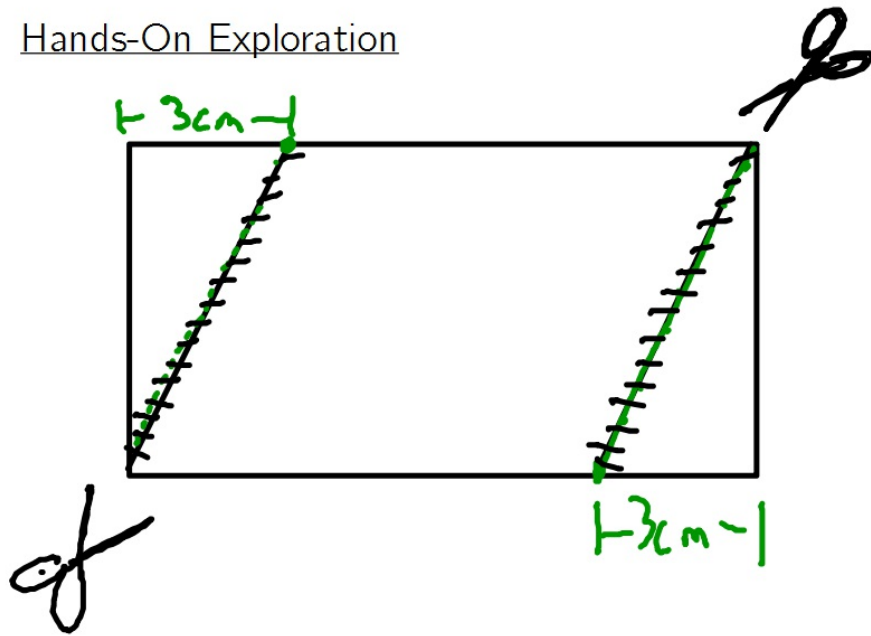
This means:

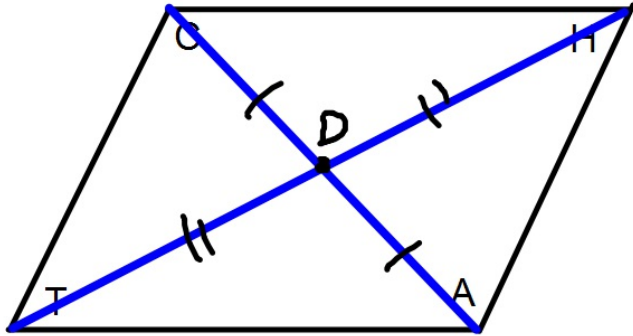
Opposite sides of a parallelogram are...

Congruent



Hands-On Exploration





- Label as CHAT
- Draw diagonals TH and CA
- Mark intersection as D
- Measure the following and record into your books:

$$CH = 9.5 \text{ cm}$$

$$AT = 9.5 \text{ cm}$$

$$HA = 8 \text{ cm}$$

$$CT = 8 \text{ cm}$$

opp. sides \cong .

$$CD = 5.5 \text{ cm}$$

$$AD = 5.5 \text{ cm}$$

$$TD = 7 \text{ cm}$$

$$DH = 7 \text{ cm}$$

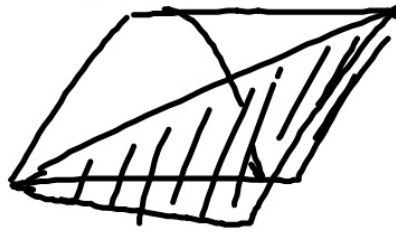
Diagonals
bisect
each
other

$$HT = 15 \text{ cm}$$

$$CA = 10 \text{ cm}$$

Diag.
are
not
always
 \cong

• Fold along line TH.



$$\angle C \cong \angle A$$