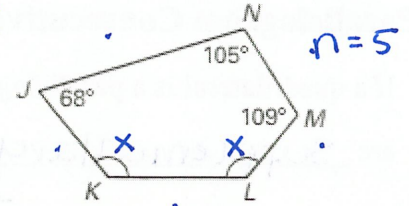


Example #4: Find the sum of the measures of the interior angles of the convex decagon. $n=10$

$$(10-2)180 = 8(180) \\ = 1,440^\circ$$

Example #5: Use the diagram at the right. Find $m\angle K$ and $m\angle L$.

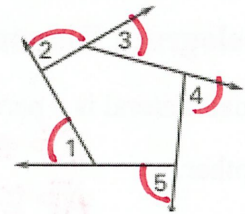
$$(5-2)180 \rightarrow 540^\circ = 68^\circ + 105^\circ + 109^\circ + x + x \\ 3(180) \rightarrow 540^\circ = 282^\circ + 2x \\ -282 \quad -282 \\ \hline 258 = 2x \quad x = 129^\circ$$



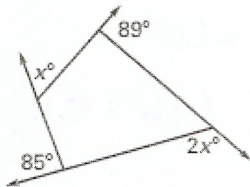
Polygon Exterior Angles Theorem (Theorem 8.2):

The sum of the measures of the exterior angles of a convex polygon, one angle at each vertex, is 360° .

ANY shape



Example #6: Find the value of x in the diagram shown.



$$x + 89 + 2x + 85 = 360^\circ \\ 3x + 174 = 360^\circ \\ -174 \quad -174 \\ \hline 3x = 186 \quad x = 62^\circ$$

Example #7: The base of a lamp is in the shape of a regular 15-gon.

a.) Find the measure of each interior angle.

$$(15-2)180^\circ = 2340^\circ \leftarrow \text{total} \\ 13(180) = 2340^\circ \\ \hline 15 \leftarrow \# \text{ of sides} \\ \rightarrow 156^\circ \leftarrow \text{Each interior}$$

b.) Find the measure of each exterior angle.

$$180^\circ - 156^\circ = 24^\circ \\ 360^\circ \div 15 = 24^\circ$$

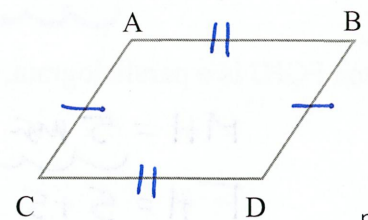
$$\frac{(n-2)180^\circ}{n} \rightarrow 156^\circ \leftarrow \text{Each interior}$$

Chapter 8.2: Use Properties of Parallelograms

Parallelogram: A quadrilateral with both pairs of opposite sides parallel
Defn \rightarrow

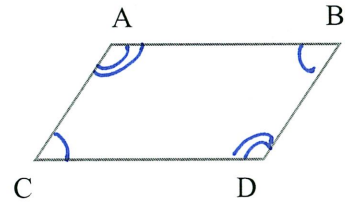
Parallelogram Congruent Side Theorem (Theorem 8.3):

If a quadrilateral is a parallelogram, then its opposite sides are Congruent



Parallelogram Congruent Angles Theorem (Theorem 8.4):

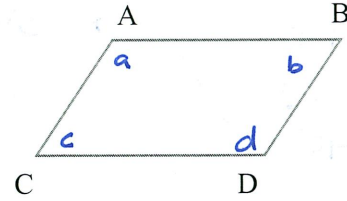
If a quadrilateral is a parallelogram, then its opposite angles are Congruent



Parallelogram Consecutive Angle Theorem (Theorem 8.5):

If a quadrilateral is a parallelogram, then its Consecutive angles are Supplementary

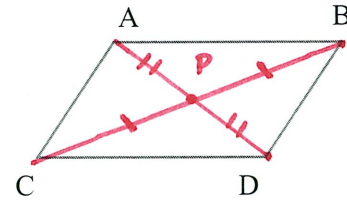
$a + c = 180^\circ$ $b + d = 180^\circ$
 $a + b = 180^\circ$ $c + d = 180^\circ$



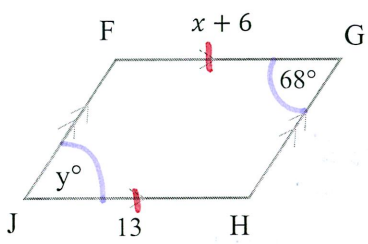
Parallelogram Diagonal Bisect Theorem (Theorem 8.6):

If a quadrilateral is a parallelogram, then its diagonal bisect each other.

$\overline{CP} \cong \overline{BP}$
 $\overline{AP} \cong \overline{DP}$



Example #1: Find the values of x and y.

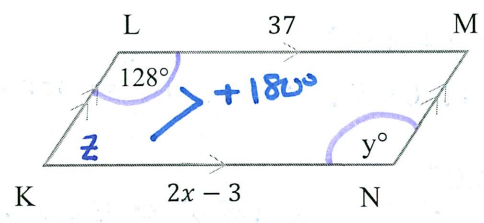


$x + 6 = 13$
 $-6 \quad -6$
 $x = 7$ (thru 8.3)

$y = 68^\circ$
 (thru 8.4)

Example #2: Find the indicated measure in parallelogram KLMN.

Find x $2x - 3 = 37$
 $+3 \quad +3$
 $2x = 40$ $x = 20 \text{ units}$
 $\frac{2x}{2} = \frac{40}{2}$



Find y

$y = 128^\circ$

Find z $128 + x = 180$
 $x = 52^\circ$

Given FGHI is a parallelogram, find MH and FH.

$MH = 5$ units
 $FH = 5 + 5 = 10$ units

