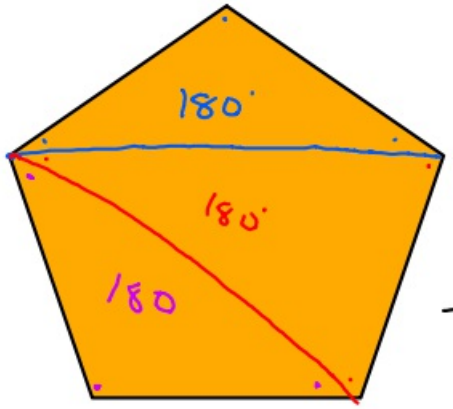
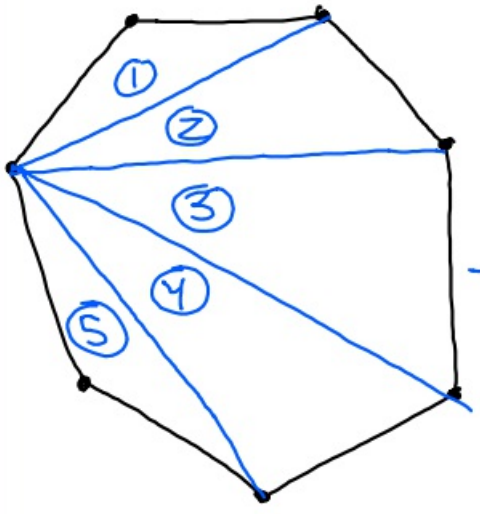
11-21-19 6th Geo

Polygons

Sides	Name
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon or Septagon
8	Octagon
9	Nonagon
10	Decagon



$$\begin{array}{r} 180 \\ \times\ 3 \\ \hline 540^\circ \end{array}$$



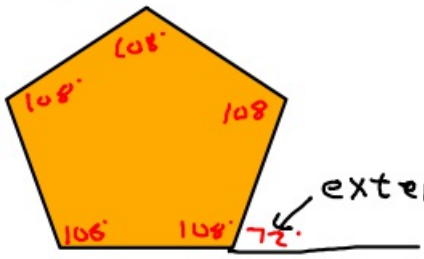
$$\begin{array}{r} 180 \\ \times\ 5 \\ \hline 900^\circ \end{array}$$

Basic Formula for a Polygon with n sides.

$$(n-2)\cdot 180^\circ$$

↑ How many △s in polygon

Regular Pentagon

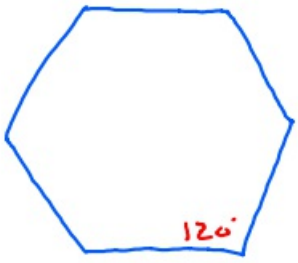


$$\text{Exterior } \angle = \frac{360}{n}$$

How many degrees is each interior angle of a regular Hexagon?

$$\text{ext}\angle = \frac{360}{n}$$

$$= \frac{360}{6} = 60$$



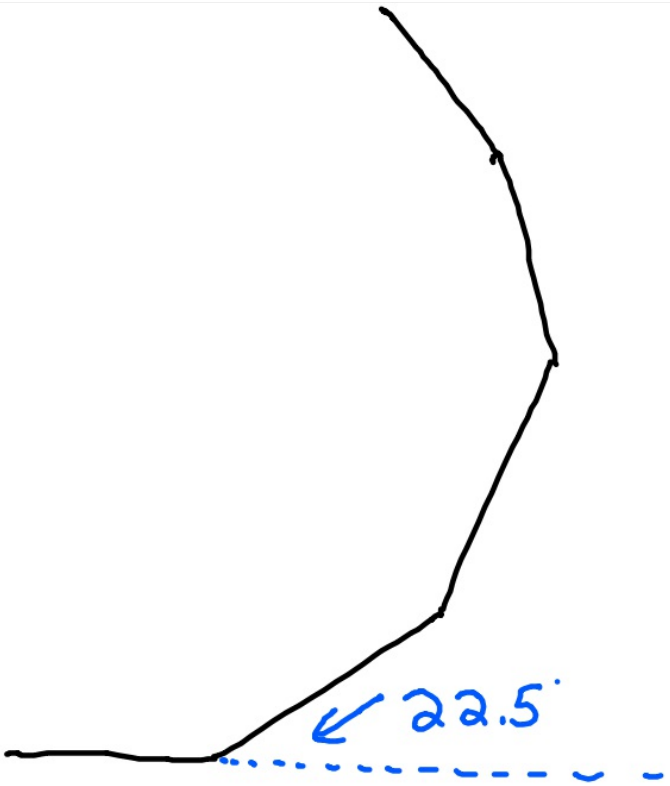
$(n-2)\cdot 180$

$(6-2)\cdot 180$

720° ← total of all ∠'s

$\frac{720}{6}$

120°



How many sides is this regular polygon?

$$\text{ext}\angle = \frac{360}{n}$$

$$n = \frac{360}{\text{ext.}\angle}$$

$$n = \frac{360}{22.5}$$

$$n = 16$$

The measure of an interior angle of a regular polygon is 144°. How many sides is the polygon?

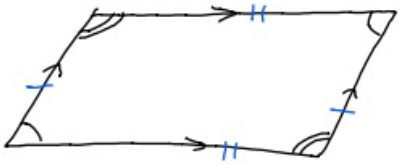
$n = \frac{360}{\text{ext. } \angle}$

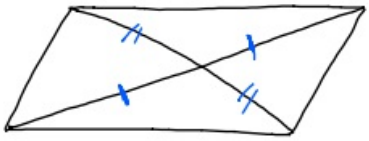
$n = \frac{360}{36}$

$n = 10$

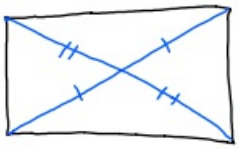
New concept

Parallelogram

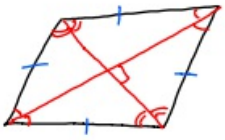




Rectangle



Rhombus



11-21-19

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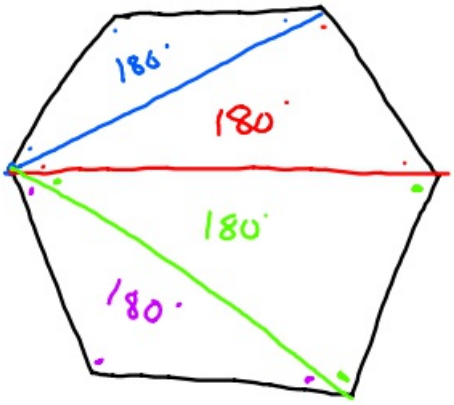
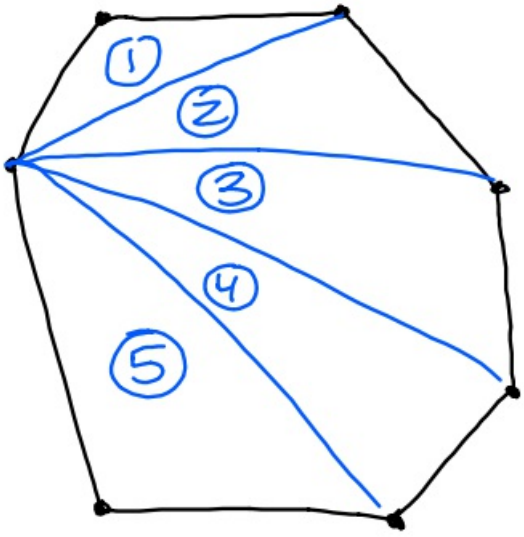


180
× 4
720°



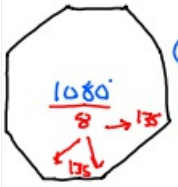
180
× 5
900°

Can you give me a formula for a polygon with n sides as to how many degrees is in it?

$(n-2)\cdot 180^\circ$

↑ how many Δ's there are.

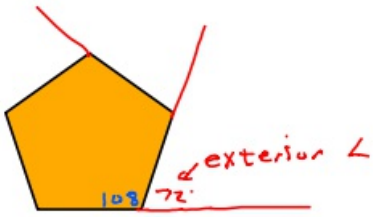
How many degrees is each angle in a regular octagon?



$(n-2)\cdot 180$ = sum of all ∠'s inside

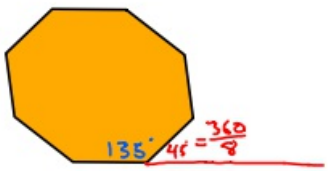
$(8-2)\cdot 180$

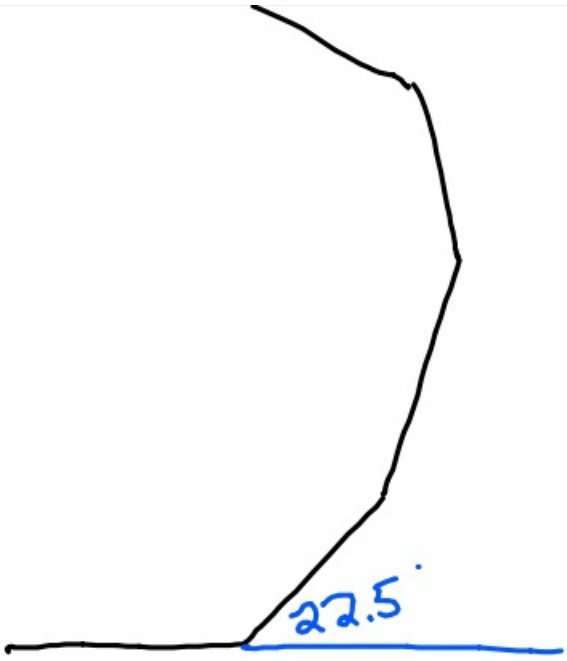
1080



$\text{exterior}\angle = \frac{360}{n}$

How many degrees is each interior angle of a regular octagon





How many sides is this polygon that you can't see?

$$\text{ext} \angle = \frac{360}{n}$$

$$n = \frac{360}{\text{ext} \angle}$$

How many sides does a polygon have if its interior angle is 144°?

$$n = \frac{360}{\text{ext.} \angle}$$

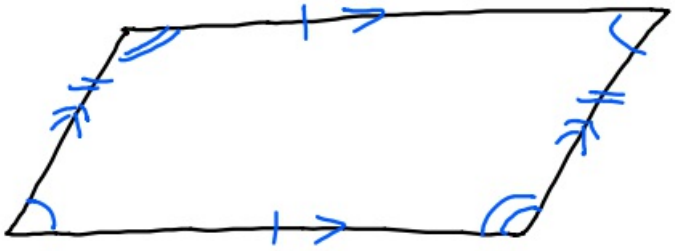
144/36°

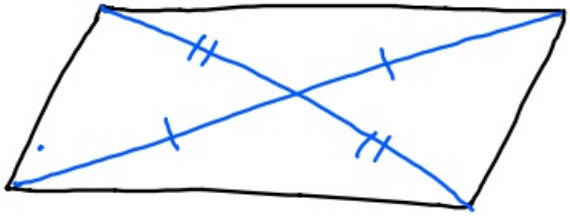
$$n = \frac{360}{36}$$

$$n = 10$$

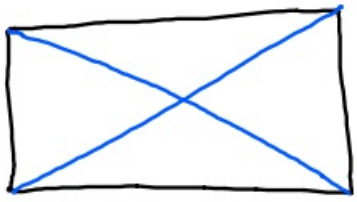
New concepts

Parallelogram





Rectangle



Rhombus