

Polygons and their angle measures:

Today's goals:

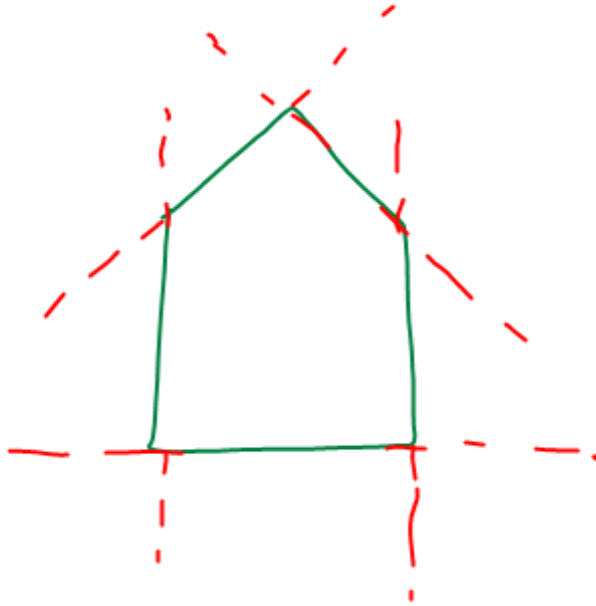
- 1.) Be able to identify whether or not a figure is a polygon
- 2.) Find sum of interior and exterior angles of a polygon
- 3.) Find angles of a regular polygon.

Definition of a polygon: Plane figure with segments for sides.

What makes a figure not a polygon?

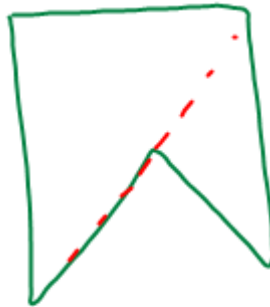
Convex polygon:

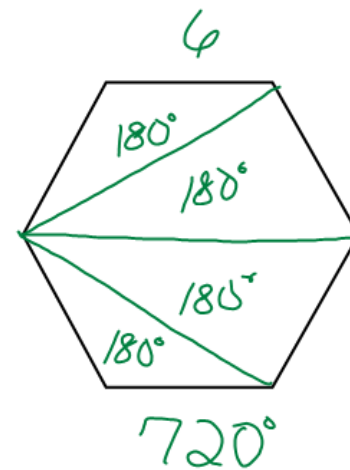
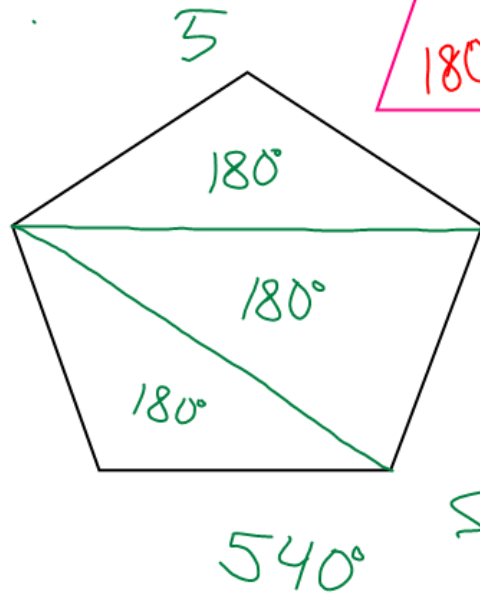
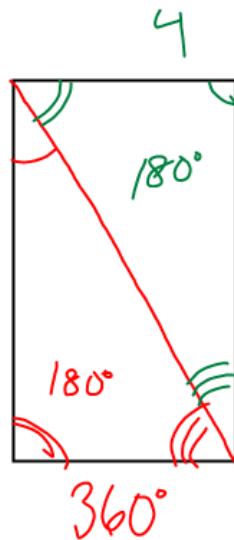
* extending
side stay
outside



Concave polygon:

* extending a
side goes into
figure





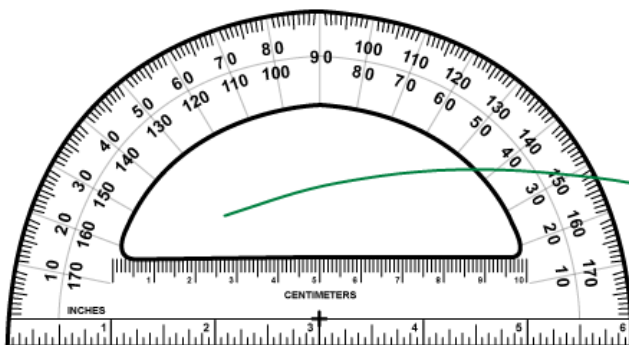
Formula:

$$S = 180(n - 2)$$

$$S = 180(12 - 2)$$

$$= 180(10)$$

$$S = 1800^\circ$$



④

$$S = 180(n-2)$$

$$120n = 180(n-2)$$

$$120n = 180n - 360$$

$$\begin{array}{r} -180n \quad -180n \\ \hline \end{array}$$

$$\begin{array}{r} -60n = -360 \\ \hline -60 \quad -60 \end{array}$$

$$\boxed{n=6}$$

regular polygon:

All sides and $\angle$'s
are $\cong$.



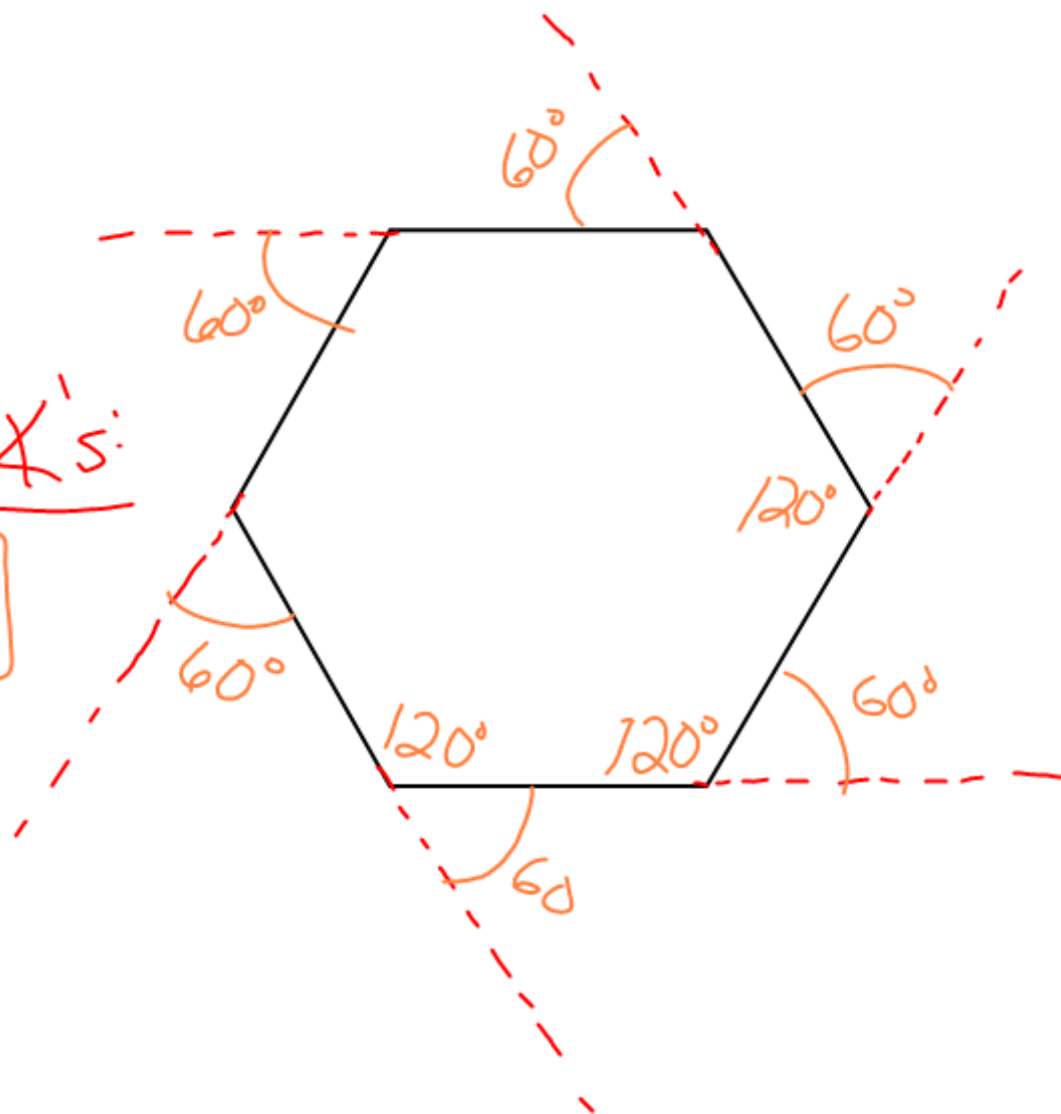
$n = \#$ of sides .

$n = \#$ of angles

Sum of interior $\angle$'s
 $= 120n$

Sum of
exterior $\angle$'s:

360°



21-gon
 360°

12-gon

$$S = 180(n-2)$$
$$S = 180(12-2)$$

 $3x$ -gon

$$S = 180(n-2)$$
$$S = 180(3x-2)$$
$$= 540x - 360$$