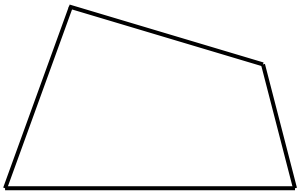
Geometry Note-Taking Guide **Name:**_____

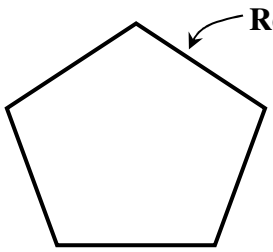
Period:____

Section 8.1 – Find Angle Measures in Polygons

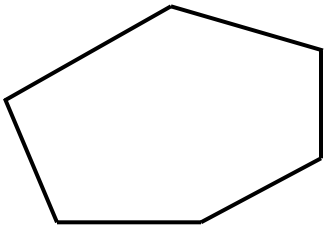
We know the sum of the interior angles of a triangle is 180°. You can determine the sum of the interior angle measures of any polygon by dividing it into triangles.



Quadrilateral



Pentagon



Hexagon

Polygon	**Number of Sides**	**Number of Triangles**	**Sum of Measures of Interior Angles**
Triangle (3-gon)	**3**	**1**	**$1 \cdot 180° = 180°$**
Quadrilateral (4-gon)			
Pentagon (5-gon)			
Hexagon (6-gon)			
n-gon			

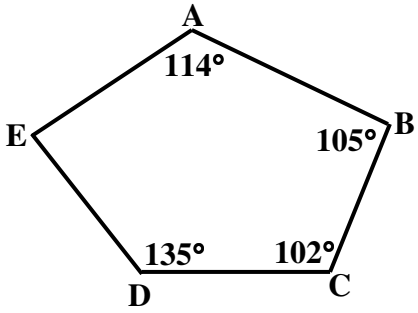
Polygon Interior Angle Sum Theorem

The sum of the measures of the interior angles of a n-gon is _____.

Ex 1:

a) Find the value of x.

b) Find m∠DEA.



Finding Each Polygon Interior Angle Measure

The measure of each interior angle of a regular n-gon is _____

Ex 2:

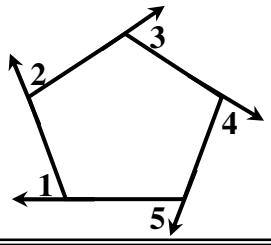
a) Determine the measure of each interior angle of a regular pentagon.

b) The measure of each interior angle of a regular polygon is 120°. How many sides does the polygon have? What is the name of the polygon?

Polygon Exterior Angles Sum Theorem

The sum of the measures of the exterior angles of a polygon is _____.

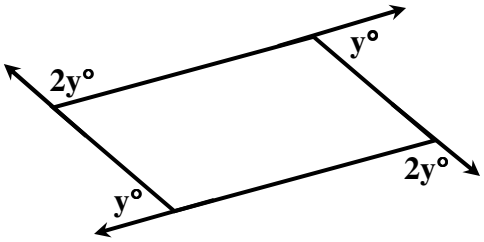
_____



Ex 3:

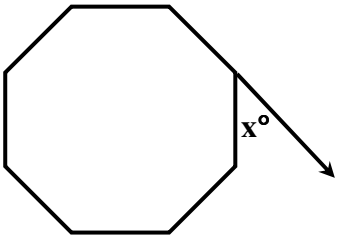
Find the value of the variable.

a)



Note: The figure below is a regular octagon.

b)



Finding Each Polygon Exterior Angle Measure

The measure of each exterior angle of a regular n-gon is _____.

Ex 4:

a) Find the measure of each exterior angle of a regular decagon.

b) The measure of an exterior angle of a regular n-gon is 72º. How many sides does the polygon have? What is the name of the polygon?