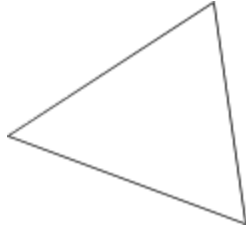
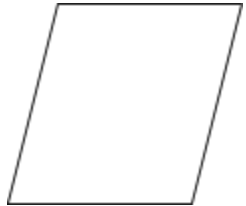
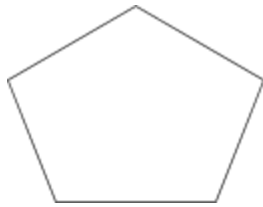

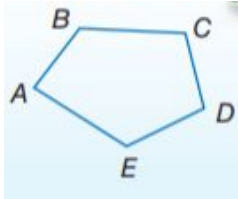


**Polygon:**

**Diagonal:**

Investigate!

Polygon	Number of Sides	Number of Triangles (construct all possible diagonals from one vertex)	Sum of Interior Angle Measure
Triangle			
Quadrilateral			
Pentagon			
Hexagon	6	 4 Triangles	$4(180) = 720$
n-gon			

<p>Polygon Interior Angle Sum Theorem</p>	<p>The sum of the interior angle measure of an <math>n</math> – sided convex polygon is <math>(n - 2) \cdot 180</math></p>	
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Recall:

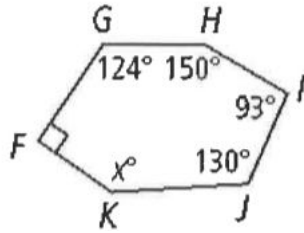
Number of Sides	Polygon
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
$n$	

1. Find the sum of the measure of the interior angles of a convex heptagon.
  
2. Find the measure of ONE angle in each regular polygon below:
  - a. Regular 18-gon
  - b. Regular 24-gon
  - c. Regular 15-gon

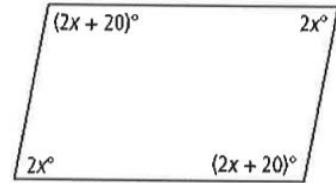
Geometry CC  
6.1 Angles of Polygons

3. Find the measure of each interior angle of:

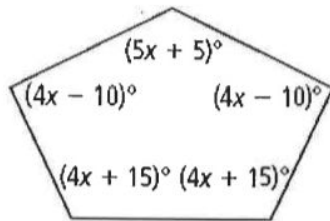
a.



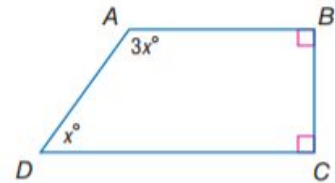
c.



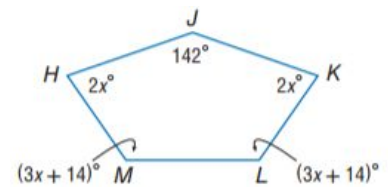
b.



d.



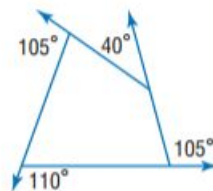
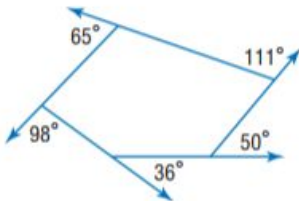
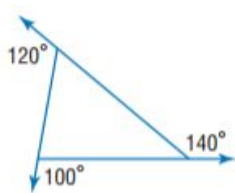
e.



4. The measure of an interior angle of a regular polygon is 135. Find the number of sides in the polygon.
  
5. The measure of an interior angle of a regular polygon is 144. Find the number of sides in the polygon.

**Investigate!**

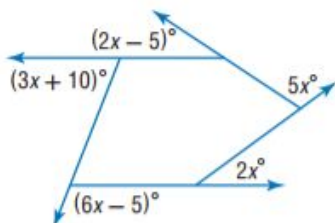
Does a relationship exist between the number of sides of a convex polygon and the sum of its exterior angle measures?



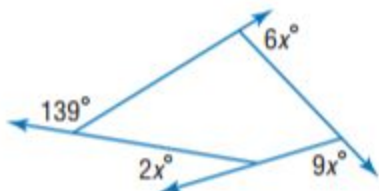
<p>Polygon Exterior Angle Sum Theorem</p>	<p>The sum of the exterior angle measure of a convex polygon, one angle at each vertex, is 360.</p>	
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6. Find the value of  $x$  in the diagram:

a.



b.



7. Find the measure of an exterior angle of each regular polygon:

a. 80-gon

b. 20-gon

c. 19-gon