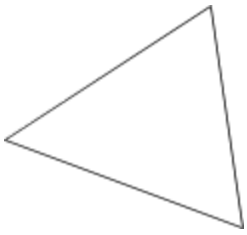
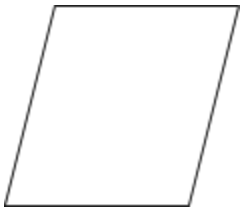
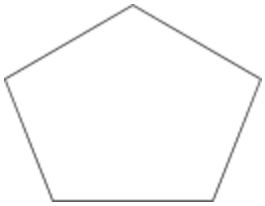
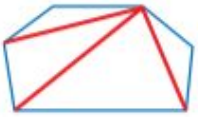
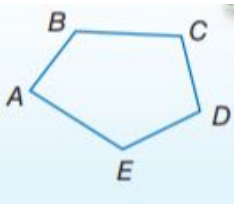
Diagonal:

Regular Polygon:

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			

Polygon Interior Angle Sum Theorem	The sum of the interior angle measure of an $n-$sided convex polygon is $(n-2)\cdot 180$	

Recall:

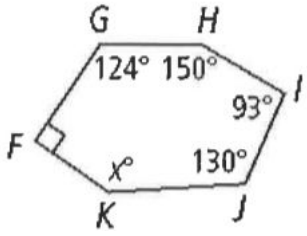
Number of Sides	Polygon
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
n	

1. Find the sum of the measure of the interior angles of a convex heptagon.

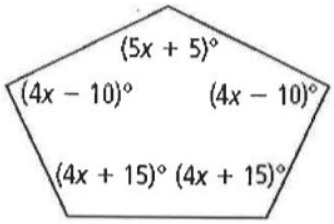
2. Find the measure of ONE angle in each regular polygon below:
   a. Regular 18-gon b. Regular 24-gon c. Regular 15-gon

3. Find the measure of each interior angle of:

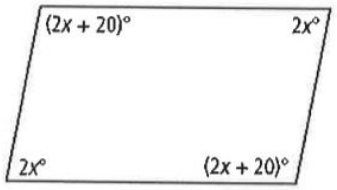
a.



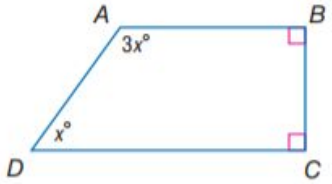
b.



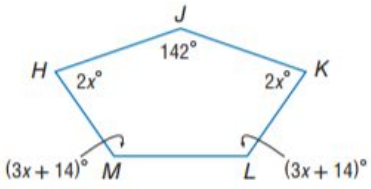
c.



d.



e.

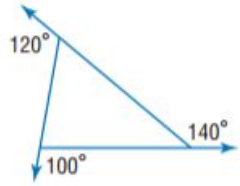


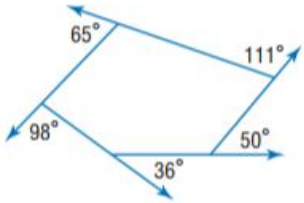
4. The measure of an interior angle of a regular polygon is 135. Find the number of sides in the polygon.

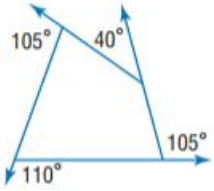
5. The measure of an interior angle of a regular polygon is 144. Find the number of sides in the polygon.

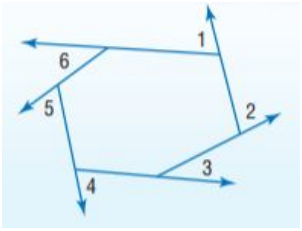
Investigate!

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



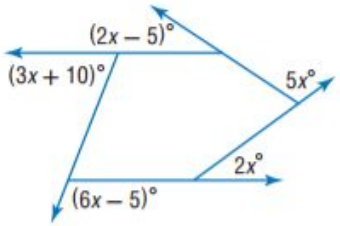




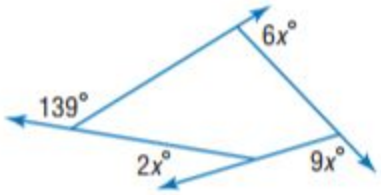
Polygon Exterior Angle Sum Theorem	The sum of the exterior angle measure of a convex polygon, one angle at each vertex, is 360.	

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