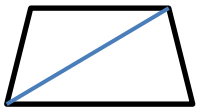
Date _____ Foundations Math 11

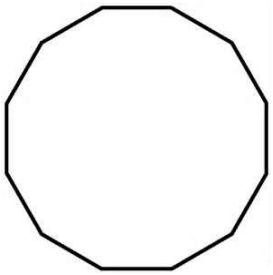
2.4: Angle Properties in Polygons

Investigating the INTERIOR angle sum of polygons

Complete the table below to help you make a conjecture about the interior angle sum of any n-sided polygon.

Polygon	Number of Sides	Sketch	Number of Triangles	Sum of Interior Angles
Triangle	3		1	180°
Quadrilateral	4		2	360°
Pentagon				
Hexagon				
Heptagon				
Octagon				
n-gon				

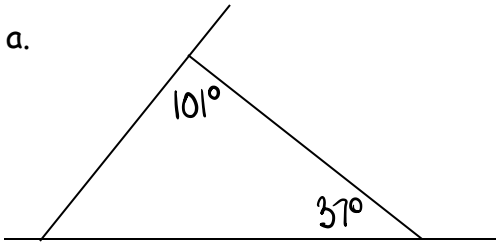
Use your conjecture to predict the interior angle sum of a dodecagon (12 sides). Verify your prediction using triangles.



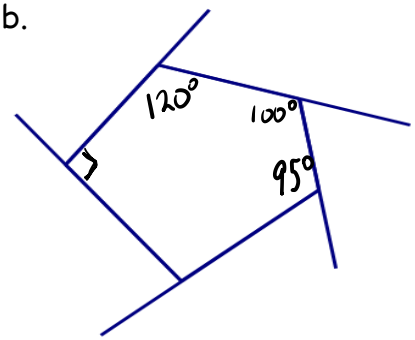
Investigating the EXTERIOR angle sum of polygons

Find the exterior angles in each diagram below. (not drawn to scale)

a.



b.



Use inductive reasoning to make a conjecture about the exterior angle sum of a polygon.

Use deductive reasoning to prove your conjecture.

Convex polygon _____

_____

Concave polygon _____

_____

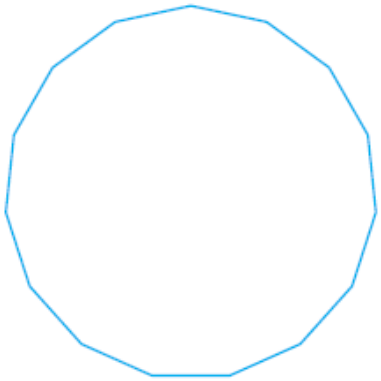
Regular polygon _____

_____

To summarize our results from our previous investigations:

Interior angle sum of a Convex polygon:	Exterior angle sum of a convex polygon:	Interior angle of a regular convex polygon:

Determine the measure of <u>each</u> interior angle of a regular 15 sided polygon (pentadecagon).



P 99 1 a & b, 2-5,8 ab, 9, 13a, 14