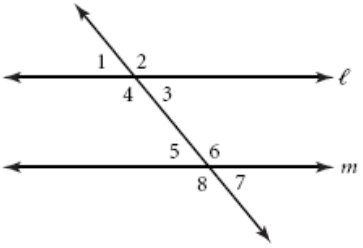
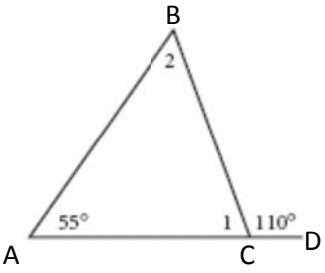
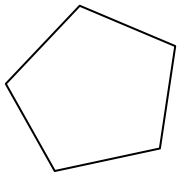
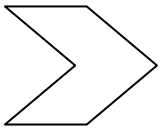
GEOMETRY HONORS CLASS NOTES	Name: _____ Section: 3.5 & 3.6 Period: _____ Date: _____ Key Question: _____ _____
Questions / Main Ideas:	**Warm-up**: *a.* If $\angle 1$ and $\angle 5$ have different measures, are lines *l* and *m* parallel? Why or why not?  b. If $m\angle 3 + m\angle 6 = 180°$ $m\angle 3 + m\angle 6 = 180°$, what can you conclude about lines *l* and *m* and why? **Notes**: • **<u>Triangle Sum Theorem:</u>** The sum of the measures of the angles of a triangle is _____°. <u>Example 1</u> In ΔXYZ, $m\angle X = 41°$ and $m\angle Y = 66°$. Find $m\angle Z$. <u>Activity</u>  • Determine $m\angle 1$ = _____ • Determine $m\angle 2$ = _____ • Determine $m\angle A + m\angle B$ = _____ • The relationship between $\angle ABC$ and $\angle BCD$ is that they are a _____. • Describe the relationship between $\angle A$ with $\angle B$, and $\angle BCD$. • In a triangle, the angles in a triangle not adjacent to a given exterior angle are called _____ angles. • _____ **Angle Theorem:** The measure of an exterior angle of a triangle is equal to the _____ of its remote interior angles.

- Determine if the polygons below concave or convex.

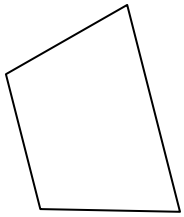


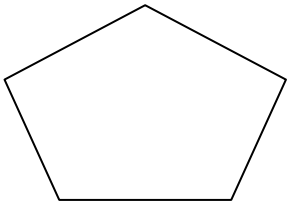


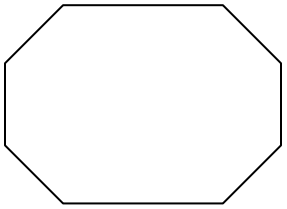
- From now on when we talk about polygons, we will always be referring to _____ polygons.

Example 2

For the shapes below select a vertex and draw in all the possible diagonals from that vertex. Count the number of triangles created. Determine the sum of the interior angles of each polygon. Create a table of values to find a pattern.





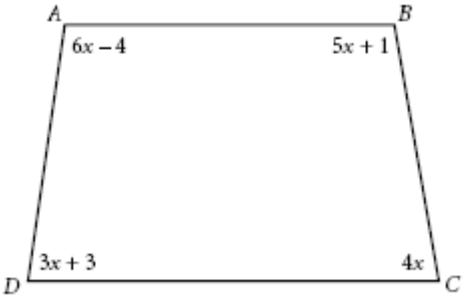


# of Sides				
# of Triangles				
Angle sums				

- **The Sum of the Interior Angles of a Polygon** with *n* sides is: _____.

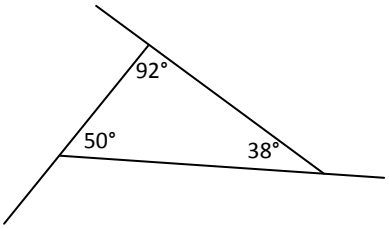
Example 3

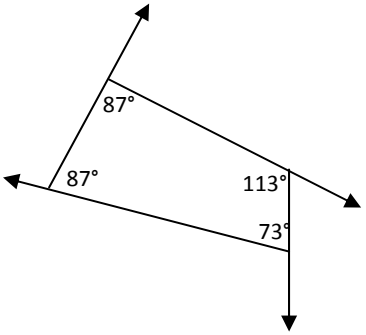
Find the measure of each angle.



Activity 2

Find the measure of the exterior angles of the polygons shown below. What is the sum of the exterior angles for each polygon?





- **Theorem:** The Sum of the Exterior Angles of a Polygon is _____.

Example 4

a) The sum of the measures of the interior angles of a 14-sided polygon is _____.

b) The sum of the measures of the exterior angles of a 7-sided polygon is _____.

Example 5

a) Find the measure of an interior angle and an exterior angle of a regular polygon with 15 sides.

b) The measure of an interior angle of a regular polygon is 172^{o}. How many sides does the polygon have?

c) The measure of an exterior angle of a regular polygon is 24^{o}. How many sides does the polygon have?

Summary: _____