**Chapter 7: Quadrilaterals and Other Polygons**

*Monday, January 6, 2020 (Beginning of Semester 2)*

A **polygon** is a closed plane figure formed by 3 or more segments that intersect only at their endpoints.

   

Side of the polygon: segments that form a polygon

Vertex of the polygon: common endpoint of two sides

Diagonal: a segment that connects any two nonconsecutive vertices

Number of Sides Name of Polygon

3 triangle

4 quadrilateral

5 pentagon

6 hexagon

7 heptagon/septagon

8 octagon

9 nonagon

10 decagon

12 dodecagon

*n* *n*-gon

What makes something **NOT** a polygon?

Open (not closed)

Curved

Segments cross

3-D

   

A polygon is **concave** if any part of a diagonal contains points in the exterior of the polygon. (\* caved in)

  

If no diagonal contains points in the exterior, then the polygon is **convex**. (\* all angles point out)

  

*Tuesday, January 7*

Interior and Exterior Angles

    

Triangle Quadrilateral Pentagon Hexagon Heptagon

3-2=1 4-2=2 5-2=3 6-2=4 7-2=5

**Sum of Interior Angles:** **(n-2) (180)**

Polygon # of sides # of triangles Sum of Interior

Angle measures

Triangle 3 1 1 (180) = 180

Quadrilateral 4 2 2 (180) = 360

Pentagon 5 3 3 (180) = 540

Hexagon 6 4 4 (180) = 720

Heptagon 7 5 5 (180) = 900

Octagon 8 6 6 (180) = 1080

Nonagon 9 7 7 (180) = 1260

***n-gon n n-2 (n-2) 180 = ??? degrees***

**Sum of Exterior Angles** is ALWAYS 360 degrees!!!

Pay attention to whether the question asks for the sum **or** the measure.

**Regular** polygon: **all** angles and sides are **equal**

**Irregular** polygon: one side or angle is not equal to the others

*Friday, January 10*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Polygon | parallelogram |  |  |  |  |
| Characteristics/  Properties | opposite sides are  congruent  opposite angles are  congruent  consecutive angles are  supplementary  (add to 180)  diagonals bisect  each other  opposite sides are  parallel |  |  |  |  |

