

1.6 Classify Polygons

Before

You classified angles.

Now

You will classified polygons.

Why?

So you can find lengths in a floor plan, as in Ex. 32.

G.GMD.4 Identify the shapes of 2-D cross-sections of 3-D objects, and identify 3-D objects generated by rotations of 2-D objects. (prep for)

Polygon - A closed figure that lies in a plane.

"contains segment sides"

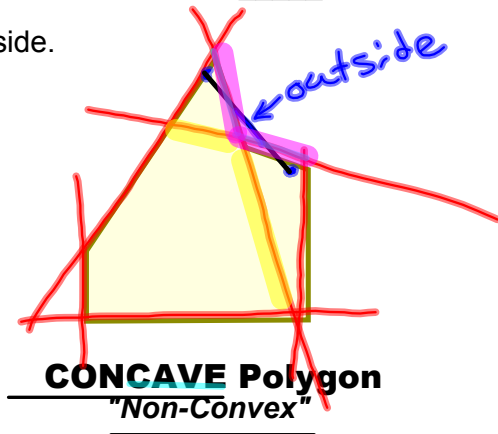
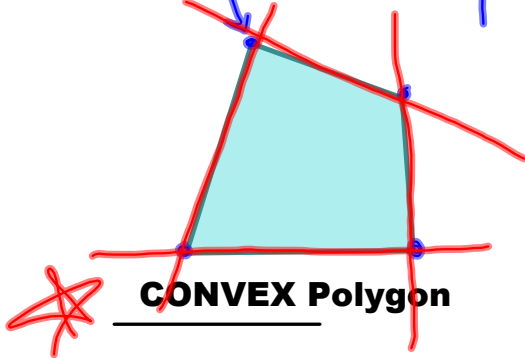
Properties of a Polygon:

1. It has 3 or more sides.

2. Each side intersects EXACTLY 2 SIDES.

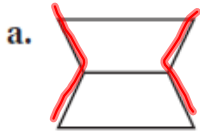
Polygon Vertex - The

endpoints of a side.

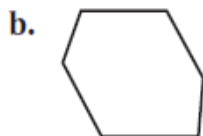


EXAMPLE 1

Tell whether the figure is a polygon and whether it is **CONVEX** or **CONCAVE**.



concave



convex



not a polygon



concave

Classifying Polygons - A polygon is named by the number of its Sides.

Number of sides	Type of polygon	Number of sides	Type of polygon
3	Triangle	8	Octagon
4	Quadrilateral	9	Nonagon
5	Pentagon	10	Decagon
6	Hexagon	12	Dodecagon
7	Heptagon	n	n -gon


Equilateral Polygon - ALL sides are \cong _____.

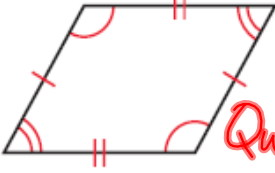
Equiangular Polygon - ALL interior angles are \cong _____.


Regular Polygon - A convex polygon that is equilateral and equiangular.

EXAMPLE 2

Classify the polygon by the number of sides. Tell whether the polygon is equilateral, equiangular, or regular. Explain your reasoning.

a.  **Regular Hexagon**

b.  **Quad.**

c.  **Equilateral Dodecagon**

EXAMPLE 3

A table is shaped like a regular hexagon. The expressions shown represent side lengths of the hexagonal table. Find the length of a side.

$$\begin{aligned}
 3x + 6 &= 4x - 2 \\
 -3x &\quad -3x \\
 6 &= x - 2 \\
 8 &= x
 \end{aligned}$$

