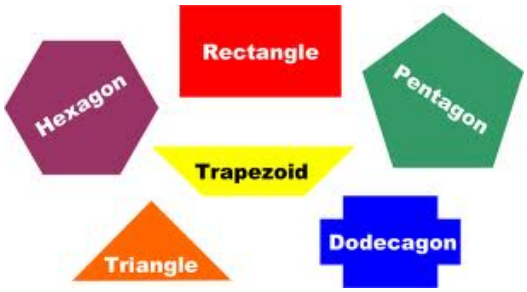
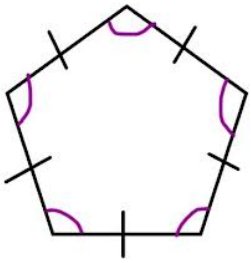
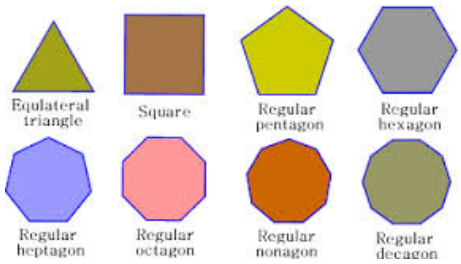
1.6 Classify Polygons

Goal: Classify polygons.



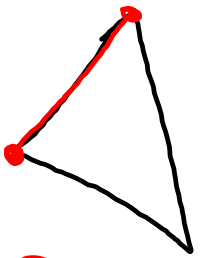




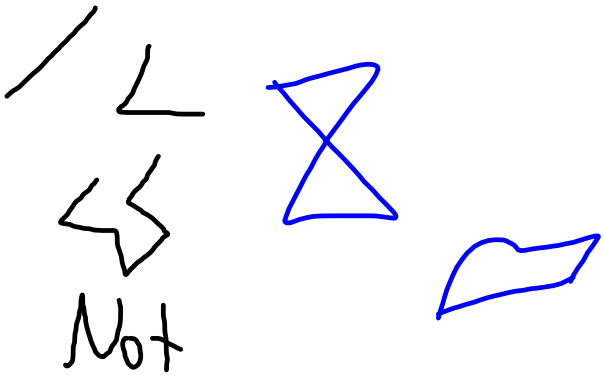
Polygon -

a closed plane figure that is formed by 3 or more segments (called sides) where each side intersects exactly 2 sides, one at each endpoint.

(each endpoint is called a vertex)

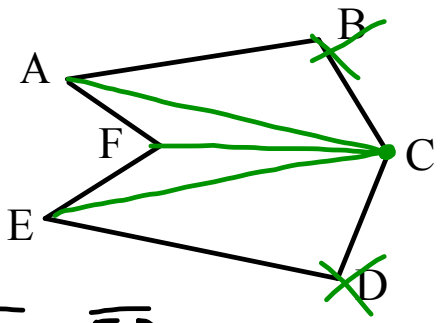


Polygon



Not

Parts of Polygons



sides - segments $\overline{AB}$ $\overline{BC}$ $\overline{ED}$

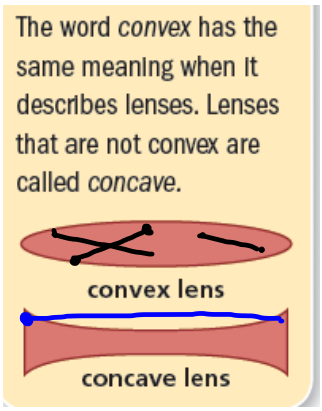
vertices - endpoints (where segment meet) E, B, F

To name a polygon - label vertices in order ABCDEF, FEDCBA, DEFABC

diagonals - segment connecting nonadjacent vertices

$\overline{FB}$ $\overline{FC}$ $\overline{FD}$ not next to $\overline{CF}$ $\overline{CE}$ $\overline{CA}$

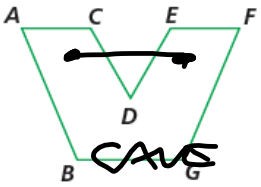
Convex - segments formed by connecting any 2 points within a polygon stay within the polygon

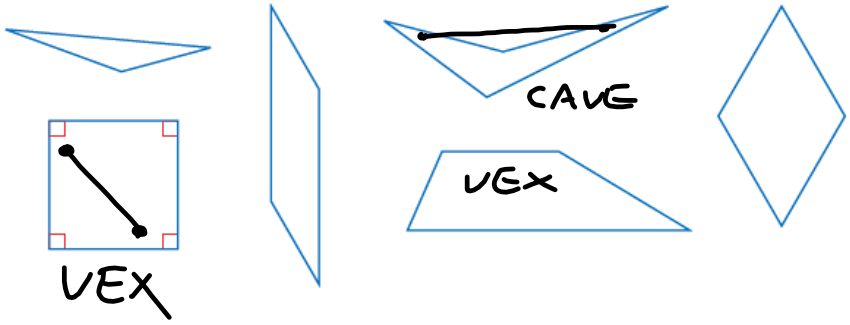


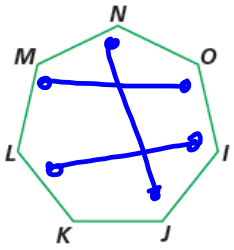
Concave - a polygon that is not convex

- NONCONVEX
  CONCAVE
  } have dents

Six figures are drawn below. All of the figures share certain characteristics. They all have straight sides, and each one encloses a region. These are characteristics of *polygons*. Polygons are not limited to three or four sides. At the right are two different seven-sided polygons, called *heptagons*.







label as convex or concave (nonconvex)

label as convex or concave (nonconvex)

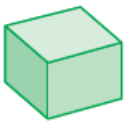
Which figures below do you think appear to be polygons? Why?

A

B

C

D



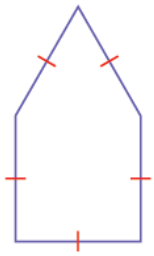
E

Names of Polygons

# of sides	name
1	-
2	-
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon
8	Octagon
9	Nonagon
10	Decagon
12	Dodecagon
n	n - gon
20	20 - gon

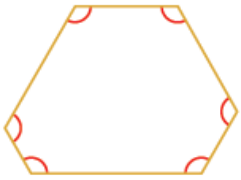
n = # of sides

Equilateral Polygons - all sides of a polygon are congruent (same length)



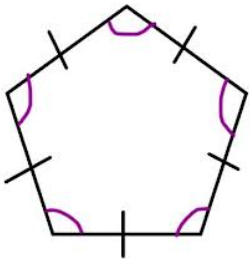
equilateral pentagon

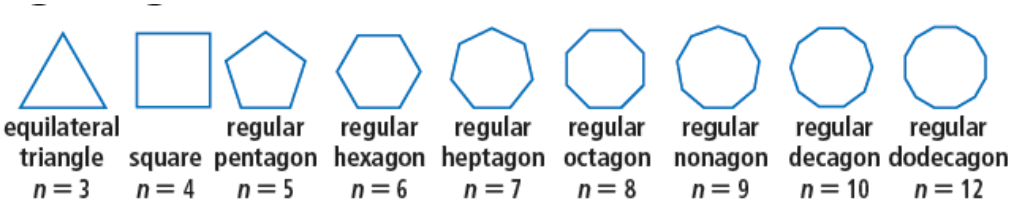
Equiangular Polygons - all interior angles of a polygon are congruent (same measure)



equiangular hexagon

Regular Polygon - a convex polygon that is equilateral and equiangular





HW: Pg 44 #'s 3-31, 39, 41