6.1 Polygons

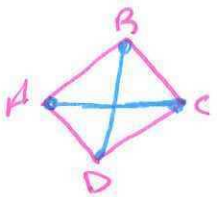
Objective : Identify and classify polygons. Find angle measures of quadrilaterals

Polygon: a figure formed by 3 or more segments that intersect only at their endpoints (must be closed)

straight

Sides: the segments of the polygon

Vertex: the point where the sides intersect



Vertices
A, B, C, D

Sides
$\overline{AB}$, $\overline{BC}$, $\overline{CD}$ $\overline{DA}$

Diagonal: a segment that connects 2 nonconsecutive vertices

$\overline{AC}$ $\overline{BC}$

Types of polygons

Triangle 3 sides	**Hexagon** 6 sides
Quadrilateral 4 sides	**Heptagon** 7 sides
Pentagon 5 sides	**Octagon** 8 sides

nonagon
9 sides

decagon
10 sides

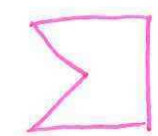
For more than 10 sides
n-gon
sides

Ex 11 sides
11-gon

Convex: no part of the polygon goes in

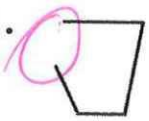
Concave: one or more parts of the polygon go in

go in



concave polygon

Examples: Determine if the figure is a polygon. If it is a polygon, classify it. If not, explain why.

1. 

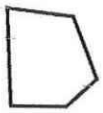
No

2. 

Yes
pentagon
concave

3. 

NO

4. 

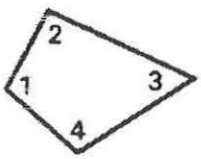
Yes
pentagon
convex

5. 

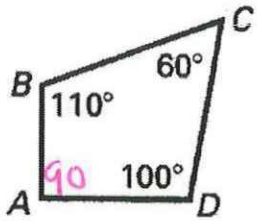
No

<u>Quadrilateral Interior Angles Theorem:</u> The sum of the measures of the angles of a quadrilateral is 360°

m<1 + m<2 + m<3 + m<4 = 360°



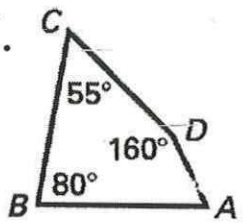
Examples: Find m<A

6. 

mLA + 110 + 60 + 100 = 360

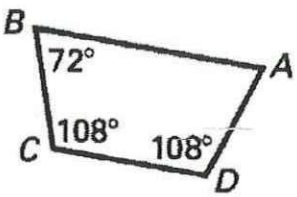
mLA + 270 = 360
-270 -270

mLA = 90°

7. 

mLA + 55 + 80 + 160 = 360

mLA = 65

8. 

mLA + 72 + 108 + 108 = 360

mLA = 72

p306 ~~#12-27~~ #1-25