

Geometry, 7.1 Notes –Triangle Application Theorems

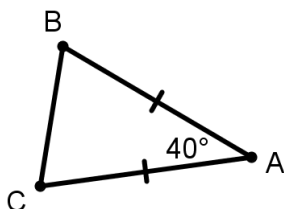
Theorems from group activity:

1)

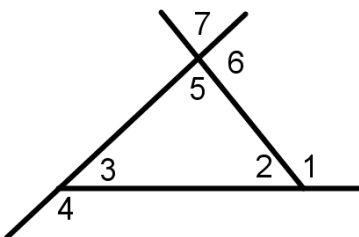
2)

3)

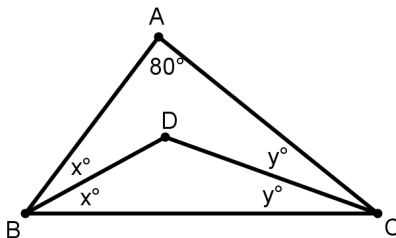
#1. Given: diagram as marked
Find: $m\angle B$



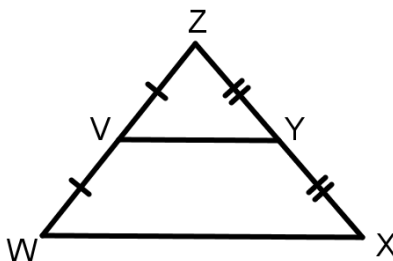
#2. Given: $m\angle 1 = 130^\circ$
 $m\angle 7 = 70^\circ$
Find the remaining angles.



#3. Find $m\angle D$

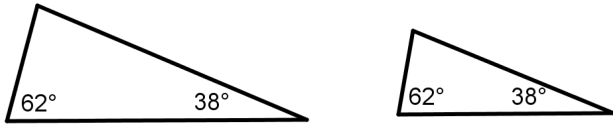


#4. If $WX=18$, find VY



Geometry, 7.2 Notes – 'No Choice' Theorem and AAS Triangle Congruency Shortcut

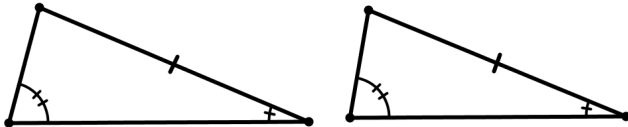
Find the missing angles in these two triangles:



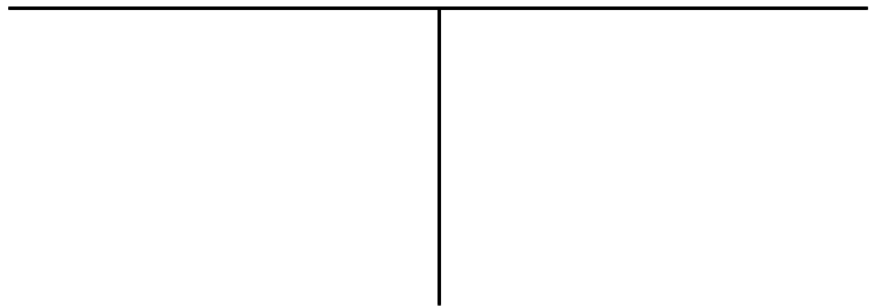
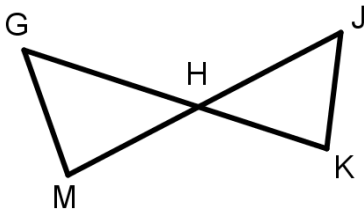
What can you conclude?

The 'no choice' theorem:

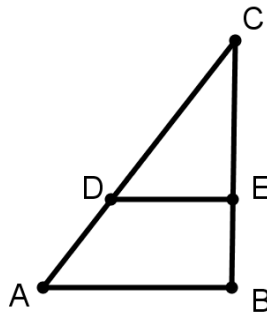
Now we can add a 5th triangle congruency shortcut: AAS



#1. Given: $\overline{JM} \perp \overline{GM}$
 $\overline{GK} \perp \overline{KJ}$
 Prove: $\angle G \cong \angle J$



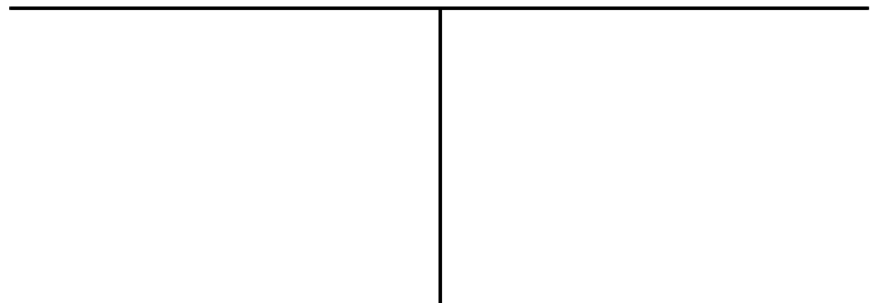
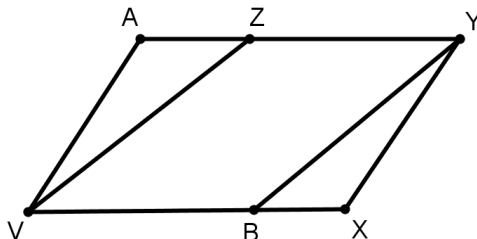
#2. Given: $\overline{CB} \perp \overline{AB}$
 $\overline{DE} \parallel \overline{AB}$
 $m\angle CDE = 40^\circ$
 Find: $m\angle A, m\angle C, m\angle CED$



$$\angle A \cong \angle X$$

#3. Given: $\angle AVZ \cong \angle XYB$
 $\angle ZVB \cong \angle YBX$

Prove:
 VBZY is a parallelogram



Geometry, 7.3 Notes –Polygon Formulas

Names of polygons:	<u>number of sides (n)</u>	<u>name</u>
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	12	
	15	
	n	

Sum of interior angles of a polygon: Sum of interior angles = $S_i =$

Examples: triangle (n=3) $S_i =$
quadrilateral (n=4) $S_i =$
pentagon (n=5) $S_i =$
27-gon (n=27) $S_i =$

Sum of exterior angles of a polygon: Sum of exterior angles = $S_e =$

Examples: triangle (n=3) $S_e =$
pentagon (n=5) $S_e =$
27-gon (n=27) $S_e =$

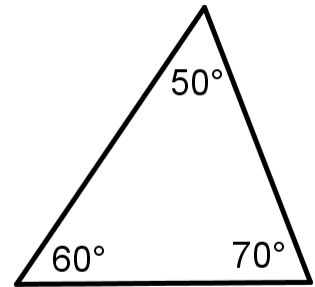
Number of diagonals of a polygon: number of diagonals = $d = \frac{n(n-3)}{2}$

Examples: triangle (n=3) $d =$
pentagon (n=5) $d =$
27-gon (n=27) $d =$

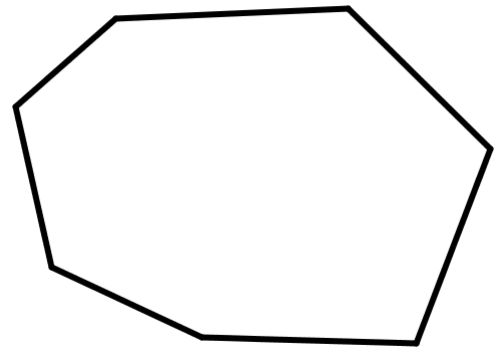
#1. Find the polygon whose sum of interior angles is 900°

#2. What is the sum of interior angles and sum of exterior angles for an 18-sided polygon?

#3. Find one exterior angle for each vertex of the polygon and find the sum of these exterior angles.



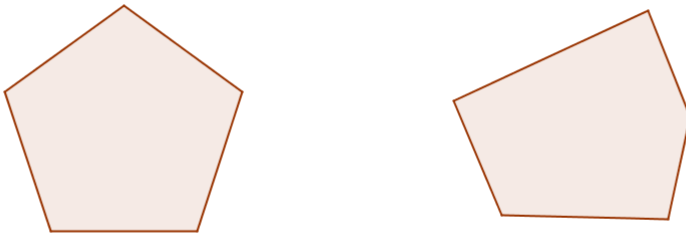
#4. How many diagonals does this polygon have?



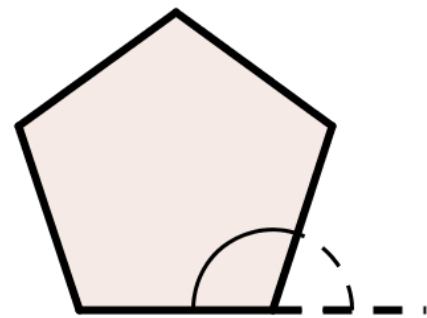
#5. What polygon has 35 diagonals?

Geometry, 7.4 Notes –Regular Polygons

'Regular' = equilateral and equiangular

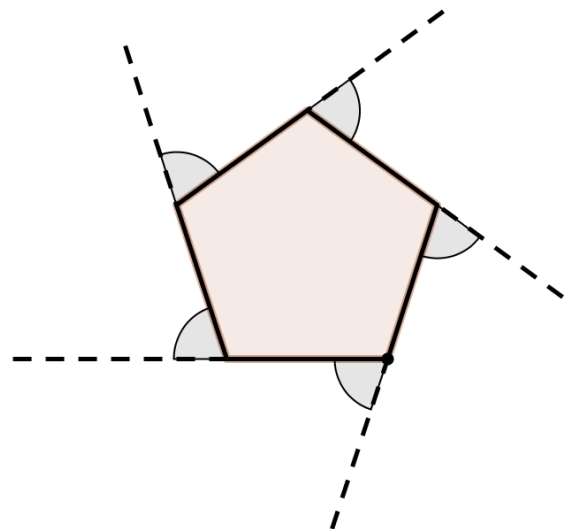


External angle of a polygon:



External angles of a regular polygon:

$$E = \frac{360}{n}$$



Examples:

#1. Find the measure of an exterior angle of a regular hexagon:

#2. Find the measure of each angle of an equiangular nonagon:

#3. If each angle of a polygon is 108° how many sides does the polygon have?

#4. Find the number of sides of an equiangular polygon if each of its exterior angles is 36° :