

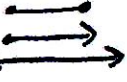





Accelerated Math Notes
Section 11.3
Polygons

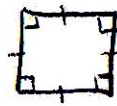
A **polygon** is a simple, closed figure formed by three or more line segments called sides.

Polygons	Not Polygons	# of sides	Name of polygon
2D	3D	3	triangle
		4	quadrilateral
<i>* concave</i>		5	pentagon
<i>* has at least 1 interior reflex angle</i>		6	hexagon
<i>convex</i>		7	heptagon
		8	octagon
		9	nonagon
		10	decagon

A **regular polygon** is a polygon that has all sides congruent AND all angles congruent.

Examples:

square

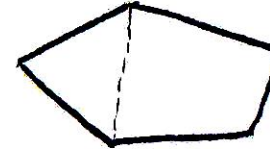


equilateral triangle



A **diagonal** is a line segment that joins two nonconsecutive vertices in a polygon.

Examples: dotted line is a diagonal

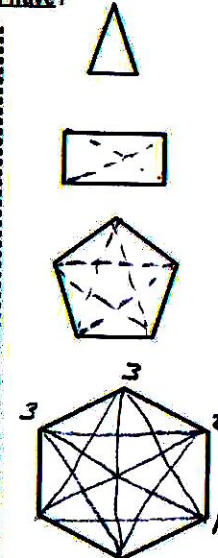


What is the sum of the interior angles of a n-gon?

# of sides	NON-overlapping # of triangles formed	# of degrees in sum of interior angles
3	1	180°
4	2 → 2(180)	360°
5	3 → 3(180)	540°
6	4 → 4(180)	720°
n	n-2 → (n-2)180	$180(n-2)$

How many diagonals does an n-gon have?

# of sides	# of diagonals
3	0
4	2
5	5
6	9
7	
8	
9	
n	$\frac{n(n-3)}{2}$



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④ sum of \angle 's in an n -gon = $180(n-2)$

$$\frac{1800}{180} = \frac{180(n-2)}{180}$$

$$\frac{10}{+2} = \frac{n-2}{+2}$$

$$12 = n$$

12 sides

⑤

$$\text{sum} = 180(n-2)$$

$$\text{sum} = 180(14-2)$$

$$\text{sum} = 180(12)$$

$$\text{sum} = 2160$$

→ all 14 angles

all congruent Regular

$$2160 \div 14 = 154.2857\dots$$

$$154.3^\circ$$

⑥A

$$\text{sum} = 180(n-2)$$

$$\text{sum} = 180(9-2)$$

$$\text{sum} = 180(7)$$

$$\text{sum} = 1260$$

all 9

$$1260 \div 9 = 140^\circ$$

ps16-518 # 8-18 even, 19, 26, 37
41, 42 44