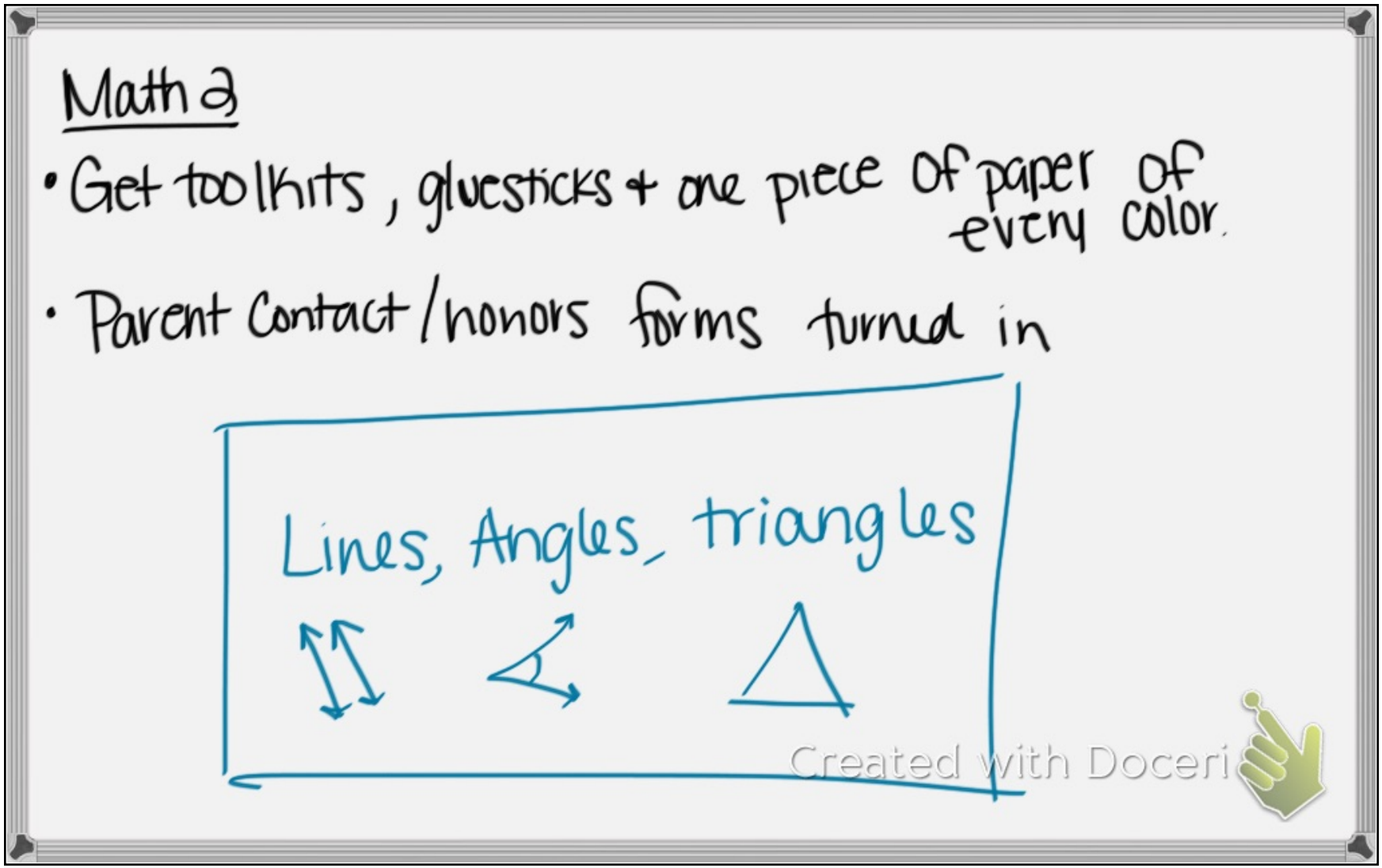
Math 2
• Get toolkits, gluesticks + one piece of paper of every color.
• Parent Contact/honors forms turned in
Lines, Angles, triangles
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Section 1.5 **Angle Pair Relationships Practice Worksheet**

Are the indicated angles *adjacent*?

1. yes ∠BAC and ∠CAD 2. No ∠EFG and ∠HGF 3. no ∠JVM and ∠LVK

∠1 and ∠2 are *complementary* angles. Given the measure of ∠1, find *m*∠2.

6. $m\angle 1=52°$, $m\angle 2=$ 38° 7. $m\angle 1=76°$, $m\angle 2=$ 14° 8. $m\angle 1=19°$, $m\angle 2=$ 71°

∠1 and ∠2 are *supplementary* angles. Given the measure of ∠1, find *m*∠2.

9. $m\angle 1=52°$, $m\angle 2=$ 128° 10. $m\angle 1=76°$, $m\angle 2=$ 104° 11. $m\angle 1=19°$, $m\angle 2=$ 161°

Using the diagram, tell whether the angles are *vertical angles*, a *linear pair*, or *neither*.

12. linear ∠1 and ∠2 13. vertical ∠1 and ∠3

14. linear ∠1 and ∠4 15. neither ∠1 and ∠5

16. neither ∠1 and ∠6 17. neither ∠3 and ∠5

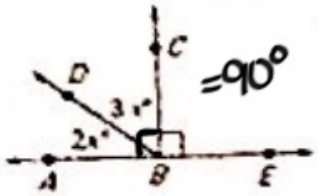
18. neither ∠1 and ∠8 19. vertical ∠2 and ∠4

Use the diagrams to find the indicated measurements.

20. $x = 18$

$m\angle ABD = 36°$

$m\angle DBC = 54°$



$2x+3x = 90$

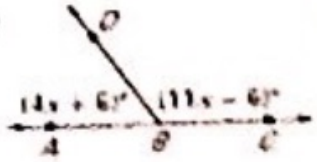
$\frac{5x}{5} = \frac{90}{5}$

$x = 18$

21. $x = 12$

$m\angle ABD = 54°$

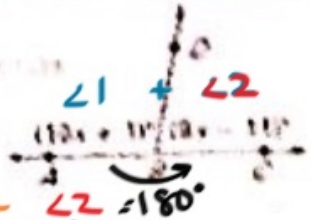
$m\angle DBC = 126°$



22. $x = 10$

$m\angle ABD = 101°$

$m\angle DBC = 79°$



$\angle 1 + \angle 2 = 180°$

$10x+1+9x-11 = 180$

$19x - 10 = 180$

$+10 \quad +10$

$\frac{19x}{19} = \frac{190}{19}$

$x = 10$

Given: $m\angle A = (4x - 2)°$ and $m\angle B = (11x + 17)°$

23. Find x if the angles are *complementary*

$4x - 2 + 11x + 17 = 90$

$15x + 15 = 90$

$15x = 75$

$x = 5$

24. Find x if the angles are supplementary

$4x - 2 + 11x + 17 = 180$

$15x + 15 = 180$

$15x = 165$

$x = 11$


Lines + Angles
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Proofs


More Proofs
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Linear Pair Postulate

if two angles are a linear pair, then the sum of their measure is 180°

Vertical Angles theorem (thm)

vertical angles have equal measure

triangle Congruence theorems


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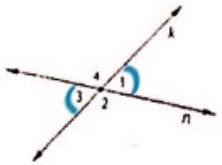
Vocabulary



If lines *n* and *k* intersect at the point show, prove m<1=m<3

1. Since lines *n* and *k* intersect, <1 and <2 are a

Linear Pair. Thus, m<1 + m<2 = 180°

Reason:

Linear Pair Postulate

2. Since lines *n* and *k* intersect, ∠3 and ∠3 are a

Linear Pair. Thus, ∠3 + ∠3 = 180

Reason:

Linear Pair Postulate

3. If m<1 + m<2 = 180 and ∠2 + ∠3 = 180 then

m<1 + m<2 = m<2 + m<3.

Reason:

two sums of 180° equal each other.

4. If m<1 + m<2 = m<2 + m<3, then m<1 = m<3

Reason:

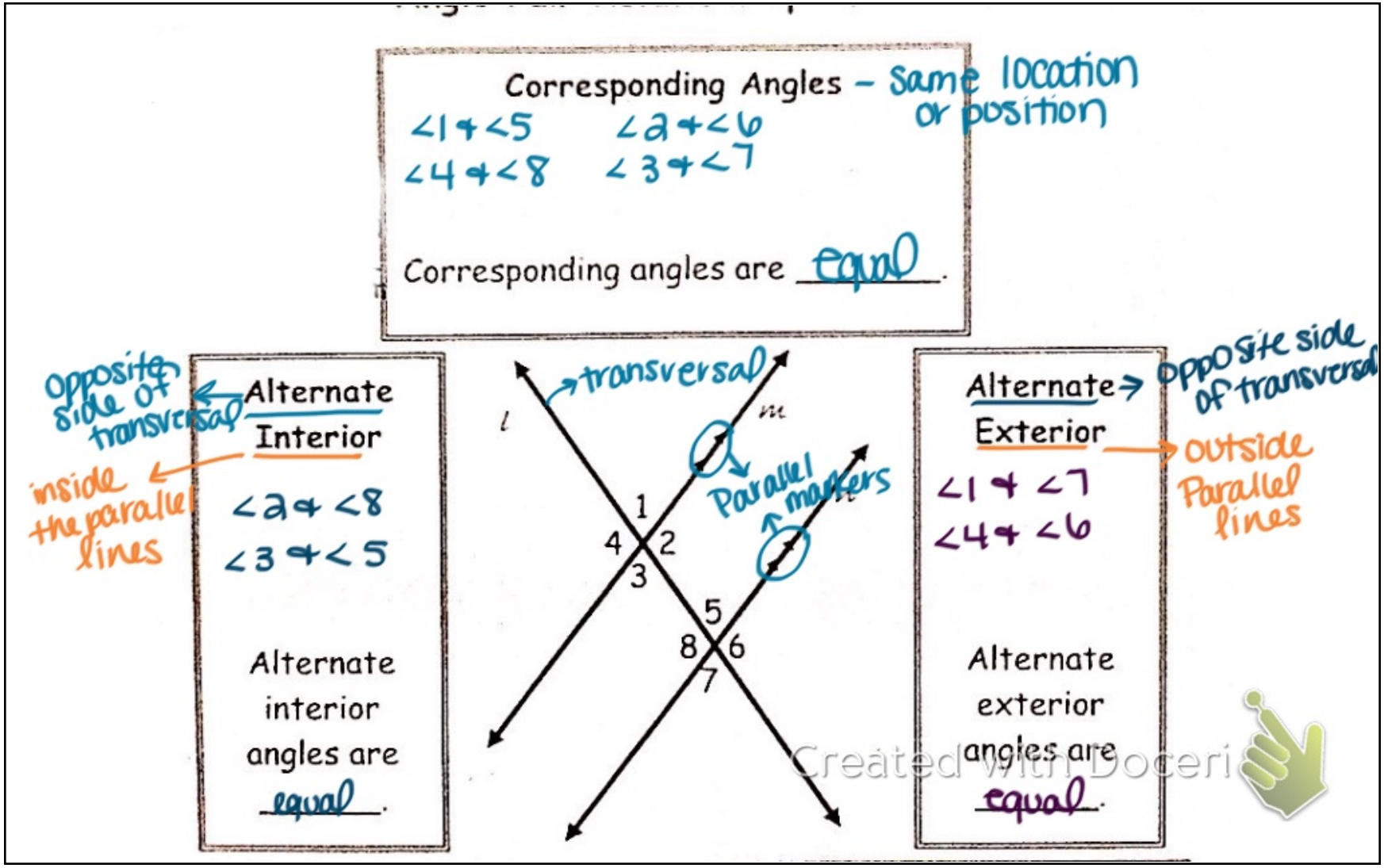
Subtraction Property of equality

Claim: Two perpendicular lines form four right angles.

Proof Plan:

PROOF:

Statements	Reasons
1. $\ell \perp m$	1. Given
2. ℓ and m form a right angle. Call it ∠1.	2. Definition of perpendicular lines
3. m∠1 = 90°	3. Definition of right angle
4. ∠1 and ∠3 are vertical angles.	4. Definition of vertical angles
5. m∠3 = m∠1 = 90°	5. Vertical Angles Theorem
6. ∠1 and ∠2 are a linear pair.	6. Definition of linear pair
7. m∠1 + m∠2 = 180°	7. Linear Pair Postulate
8. m∠2 = 180° − m∠1 = 90°	8. Algebra
9. ∠2 and ∠4 are vertical angles.	9. Definition of vertical ∠s
10. m∠2 = m∠4	10. Vertical ∠ thm
11. m∠4 = 90°	11. Subtraction prop. of equal
12. ∠1, ∠2, ∠3, and ∠4 are right angles.	12. Definition of right ∠.


Corresponding Angles – Same location or position
∠1 ≅ ∠5
∠2 ≅ ∠6
∠4 ≅ ∠8
∠3 ≅ ∠7
Corresponding angles are equal.
Alternate Interior
Opposite side of transversal
inside the parallel lines
∠2 ≅ ∠8
∠3 ≅ ∠5
Alternate interior angles are equal.
transversal
l
m
Parallel markers
1
2
3
4
5
6
7
8
Alternate Exterior
opposite side of transversal
outside Parallel lines
∠1 ≅ ∠7
∠4 ≅ ∠6
Alternate exterior angles are equal.
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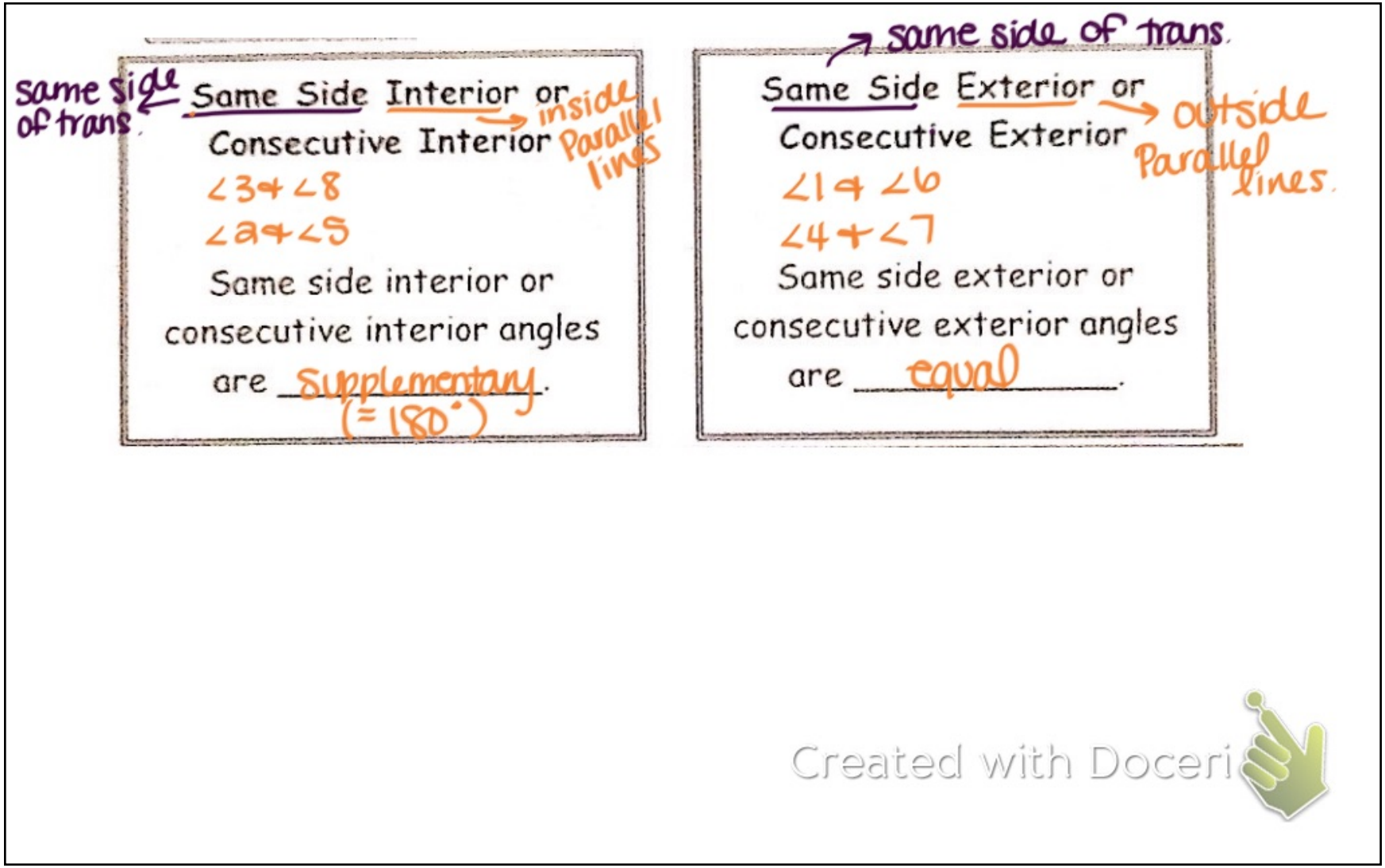
same side of trans.
Same Side Interior or
Consecutive Interior
inside Parallel lines
∠3 + ∠8
∠a + ∠5
Same side interior or
consecutive interior angles
are supplementary (= 180°).
same side of trans.
Same Side Exterior or
Consecutive Exterior
outside Parallel lines.
∠1 + ∠6
∠4 + ∠7
Same side exterior or
consecutive exterior angles
are equal.
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