Warm-up

What do you remember about proving triangles are congruent (think SSS, SAS, and HL, AAS)

Unit 7 Vocabulary

MVP Honors Math 2

SEGMENT

-PART OF A LINE CUT OFF BY TWO POINTS

LINE

- CONNECTED POINTS THAT EXTEND INFINITELY IN TWO DIRECTIONS

ANGLE

-SPACE FORMED BETWEEN TWO RAYS THAT MEET AT A COMMON ENDPOINT

CONGRUENT

- FIGURES OF BOTH THE SAME SIZE AND SAME SHAPE

CONGRUENT SEGMENTS

-SEGMENTS WHICH HAVE EQUAL LENGTHS

MIDPOINT

-POINT THAT DIVIDES A SEGMENT INTO TWO CONGRUENT SEGMENTS

SEGMENT BISECTOR

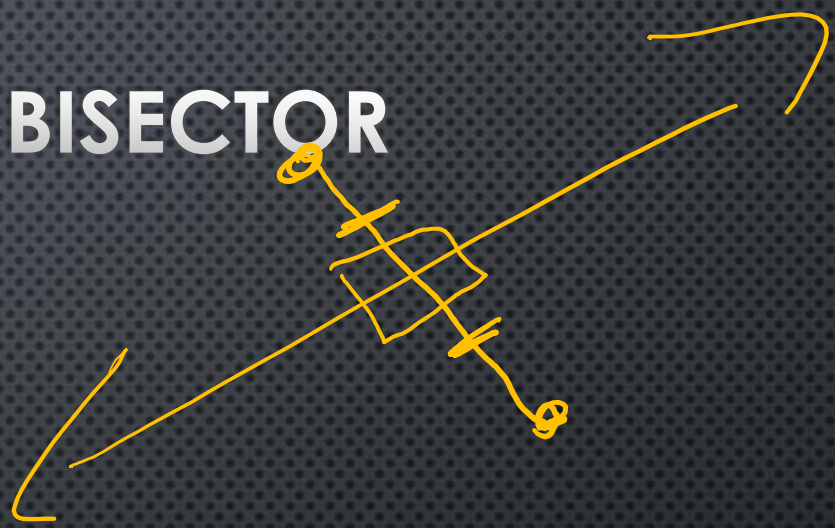
-LINE (OR PART OF A LINE) THAT INTERSECTS THE SEGMENT AT ITS MIDPOINT

PERPENDICULAR LINES

-LINES THAT INTERSECT TO FORM A RIGHT ANGLE

- SYMBOL: $\ell \perp m$

PERPENDICULAR BISECTOR



-LINE THAT IS PERPENDICULAR TO A SEGMENT AT ITS MIDPOINT

CONGRUENT ANGLES

$\cong$ same measure

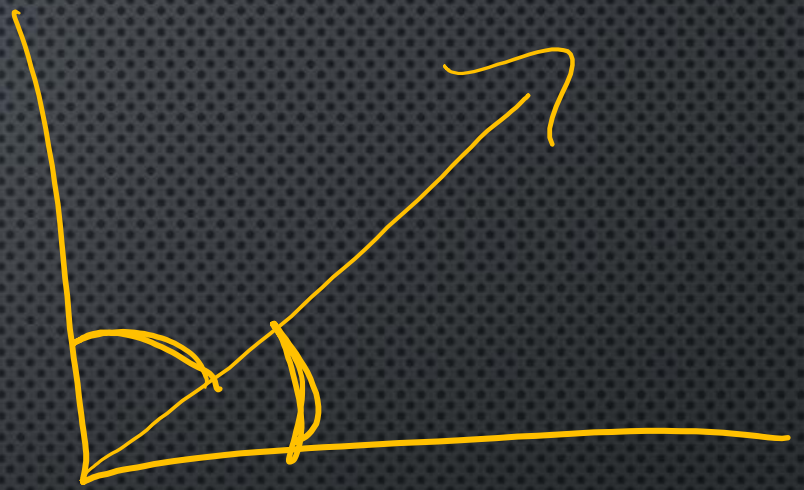
$\sim$ same shape

$\cong$

-ANGLES WHICH HAVE EQUAL MEASURES

SYMBOLS: $\angle ABC \cong \angle DEF$

Angle Bisector:



-Ray that divides an angle into two congruent angles

Complementary Angles:

-Two angles whose measures sum to 90°

SUPPLEMENTARY ANGLES

-TWO ANGLES WHOSE MEASURES SUM TO 180°

(MAKE A STRAIGHT LINE)

Linear Pair

-Two adjacent angles whose non-common sides are opposite rays

* Postulate: Linear Pairs are supplementary

VERTICAL ANGLES

-Opposite (non-adjacent) angles formed by two intersecting lines

*Theorem: All vertical angles are congruent

Right Angles

-Angle whose measure equals 90°

*Theorem all right angles are congruent

RIGHT TRIANGLE

-Triangle that contains a right angle

Reflexive Property of Congruence

-A geometric figure is congruent to itself

Transitive Property of Congruence

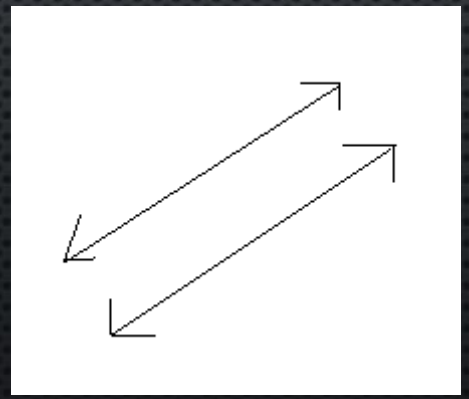
-If two "things" are equal to the same amount, then the two "things" are equal to each other

Ex. Let a = 2 and b = 2. We know a = b by the Transitive Property of Congruence (both equal 2)

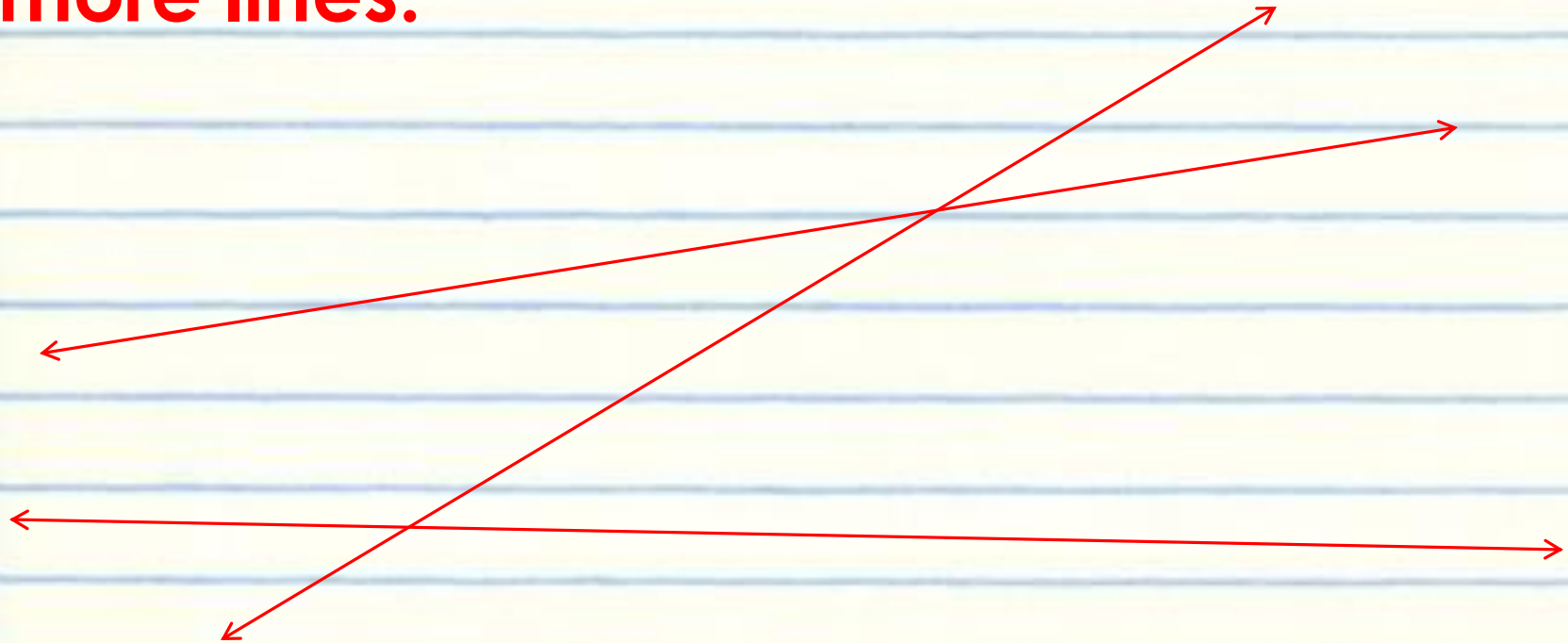
Parallel Lines

Coplanar lines that do **not** intersect. The symbol | | means "is parallel to."

Ex.



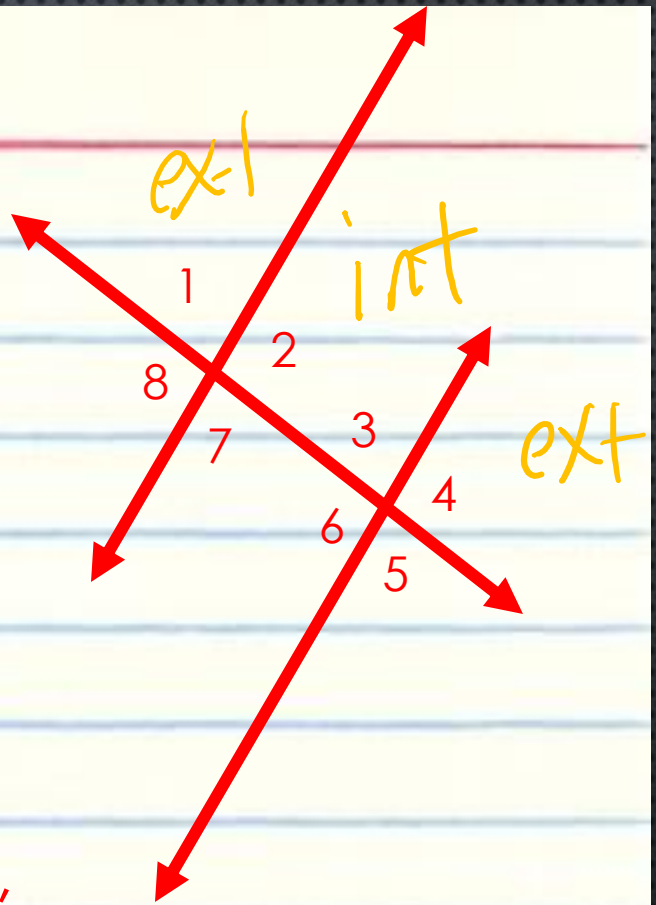
Transversal--A line that intersects two or more lines.



Alternate Interior Angles--Angles on opposite sides of a transversal and inside two other lines

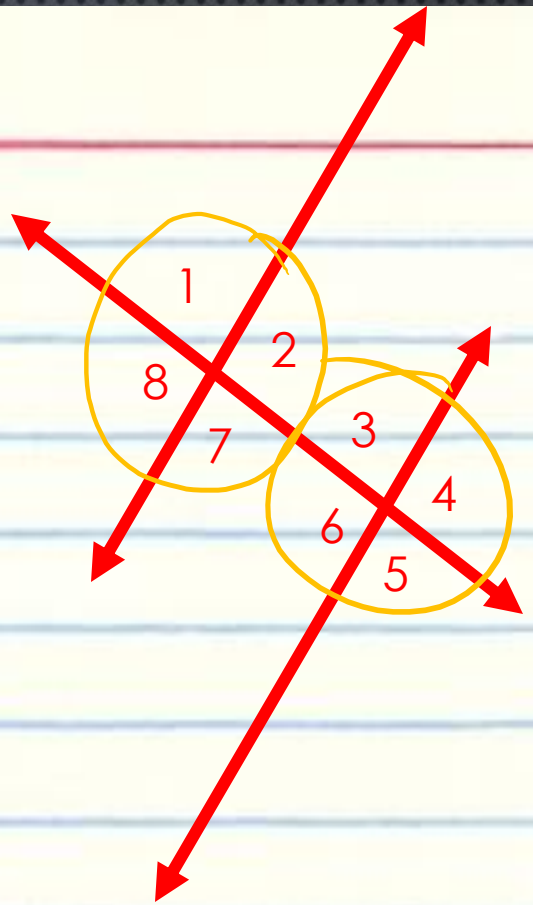
$\angle 2, \angle 6$

$\angle 3, \angle 7$



Alternate Interior Angles Theorem- If a transversal intersects two parallel lines, then alternate interior angles are **congruent**.

Corresponding Angles-Angles in the same position relative to a transversal and two other lines



∠1 , ∠3
∠8 , ∠6

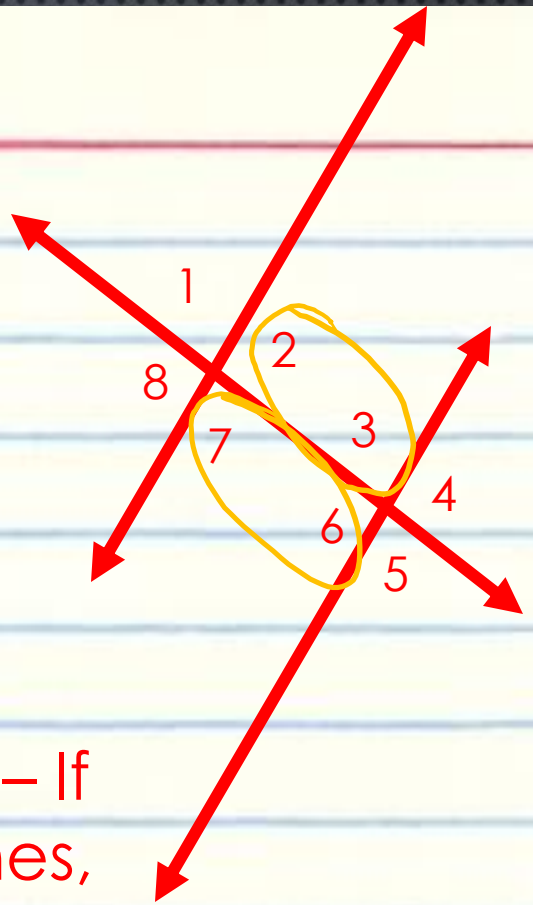
∠2 , ∠4
∠7 , ∠5

Corresponding Angles Postulate – If a transversal intersects two parallel lines, then corresponding angles are **congruent**.

Consecutive Interior-Angles on the same side of a transversal and inside two other lines

$\angle 2, \angle 3$

$\angle 6, \angle 7$

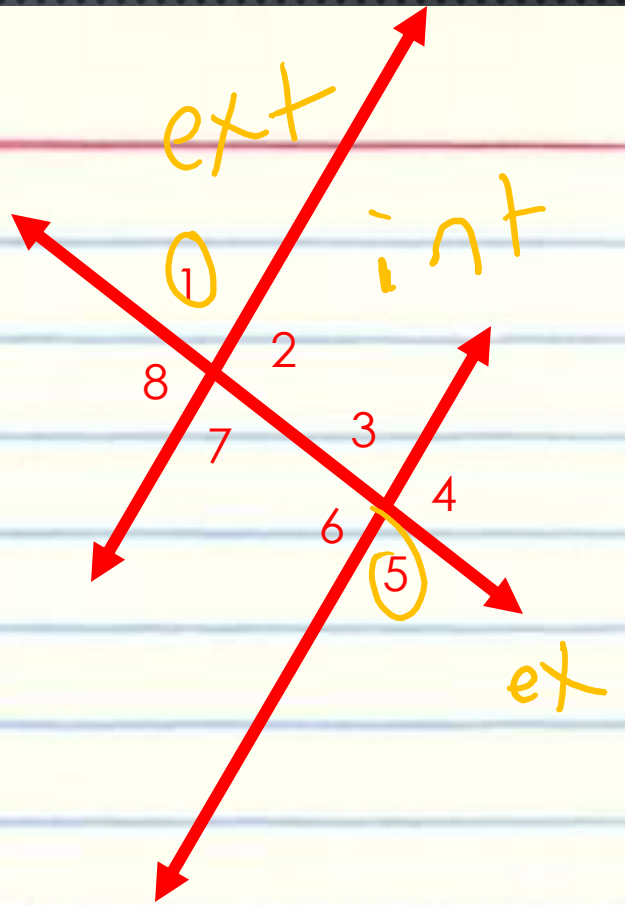


Consecutive Interior Angles Theorem – If a transversal intersects two parallel lines, then same-side interior angles are **supplementary**.

Alternate Exterior Angles- Angles on opposite sides of a transversal and outside two other lines

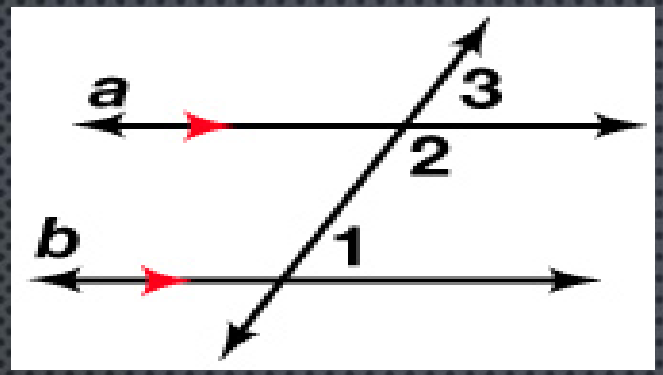
$\angle 1, \angle 5$

$\angle 8, \angle 4$



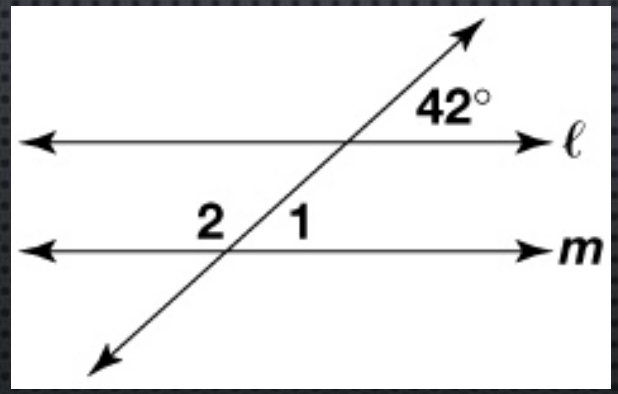
Alternate Exterior Angles Theorem – If a transversal intersects two parallel lines, then alternate exterior angles are **congruent**.

3 EXAMPLE



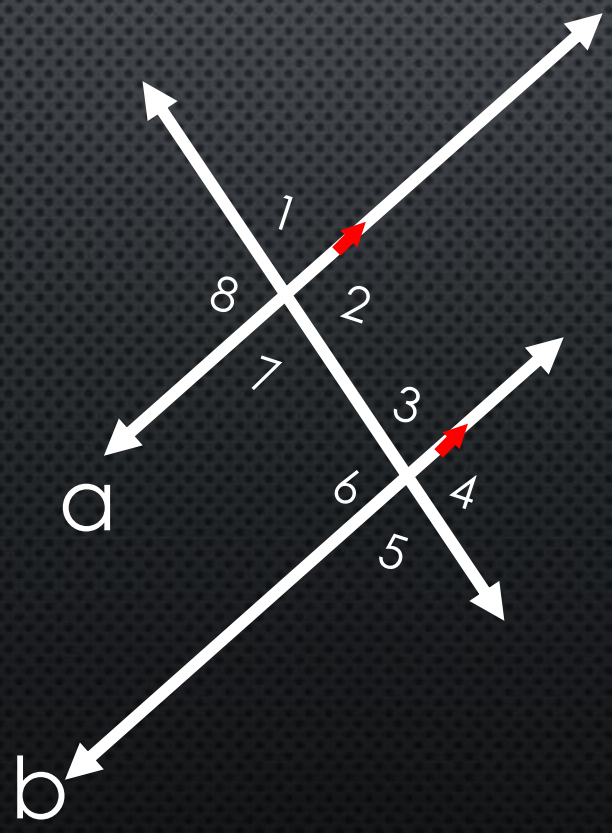
What tells us that $m\angle 3 + m\angle 2 = 180$?

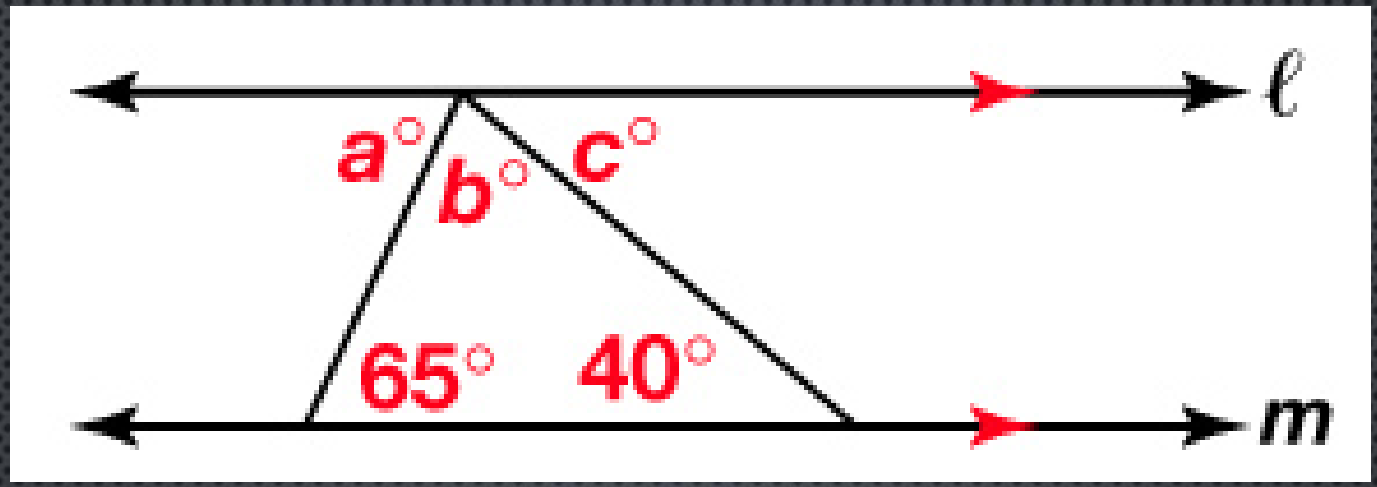
4 EXAMPLE



In the diagram above, $\ell \parallel m$. Find $m\angle 1$ and then $m\angle 2$. State your reasoning.

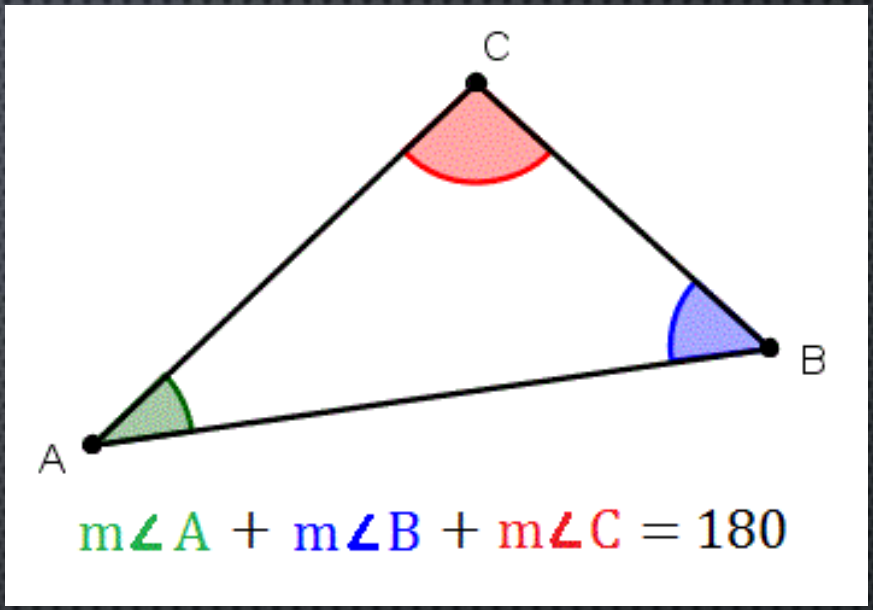
In the diagram below, a || b, find all the angles that are equal in measure to $\angle 3$.





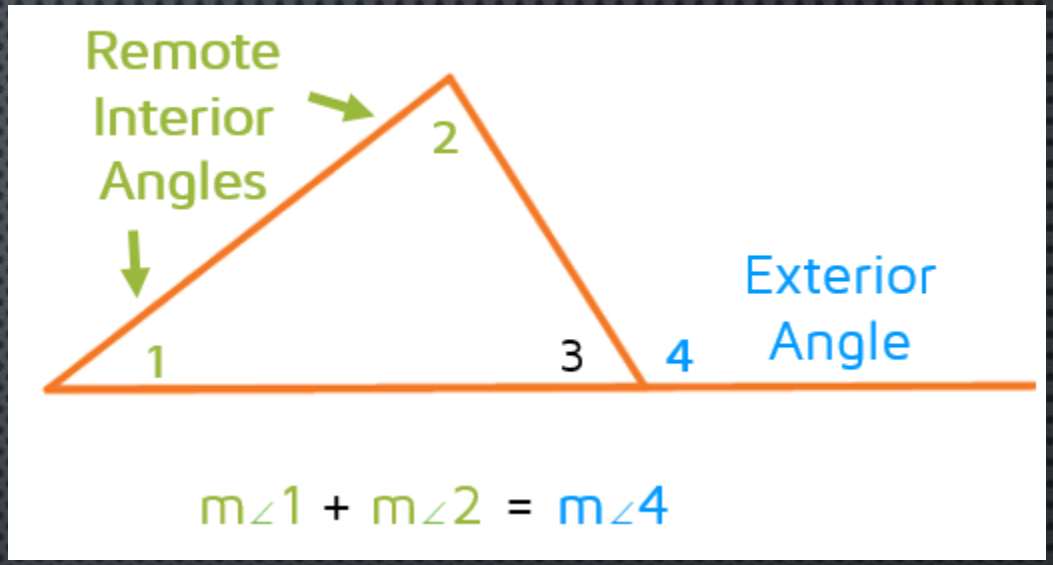
In the diagram above, $\ell \parallel m$. Find the values of a, b, and c.

TRIANGLE SUM THEOREM



THE SUM OF ALL INTERIOR ANGLES IS EQUAL TO 180°.

EXTERIOR ANGLE THEOREM



ANY EXTERIOR ANGLE IS EQUAL TO THE SUM OF THE TWO REMOTE INTERIOR ANGLES.