3-1 Angles Formed by Parallel Lines and Transversals

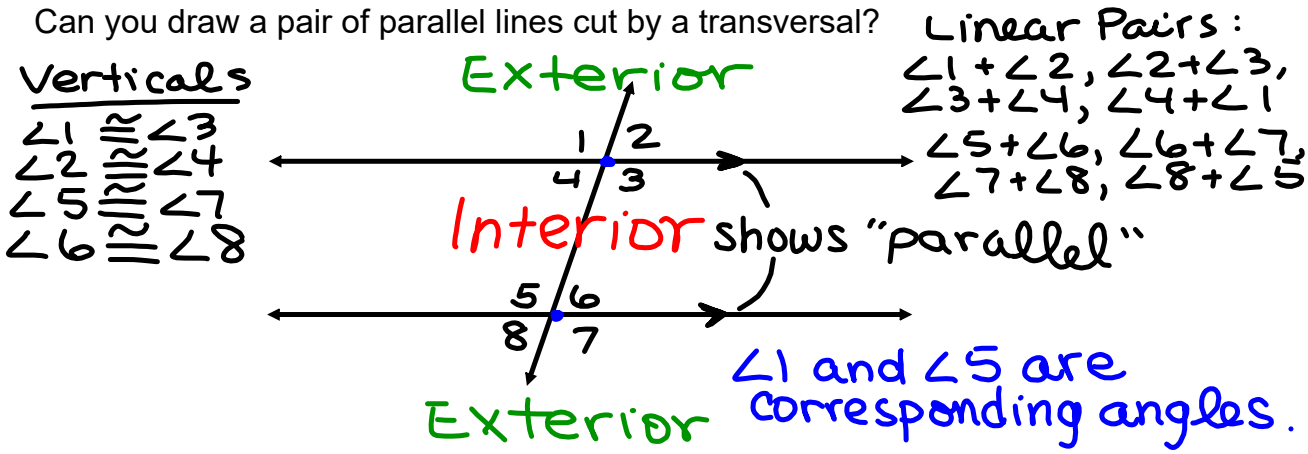
What are **parallel lines**?

Parallel lines are coplanar lines that do not intersect. (Coplanar??)

What is a **transversal**?

A transversal is a line that intersects two or more coplanar lines at two different points.

Can you draw a pair of parallel lines cut by a transversal?



What is the difference between **interior** and **exterior**, as it relates to the diagram you drew?

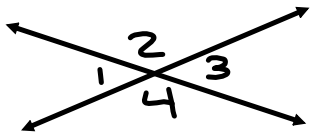
Interior: **The area inside or between the parallel lines.**

Exterior: **The areas outside of the parallel lines.**

Identify the interior and exterior areas in your diagram drawn above.
Do you know which angle pairs in the above diagram are **vertical** angles?

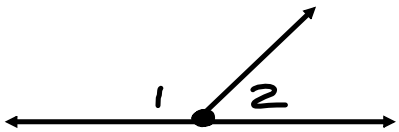
Linear Pairs?

SKETCH: VERTICAL ANGLES



∠1 ≅ ∠3
∠2 ≅ ∠4

LINEAR PAIRS



m∠1 + m∠2 = 180
supplementary

What does **alternate** mean?

every other; interchange; opposite

What does **consecutive** mean?

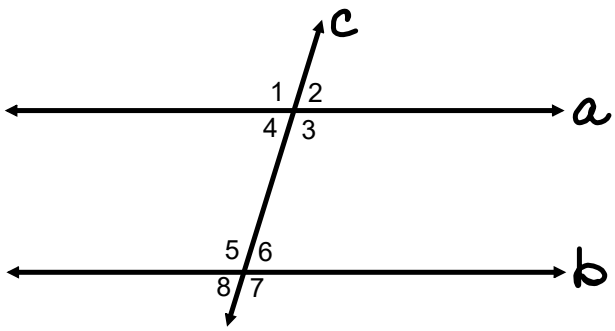
unbroken in sequence

What does **corresponding** mean (as in **corresponding angles**)?

the angles which occupy the same relative position at each intersection where a straight line crosses two others.

The Corresponding Angles Postulate:

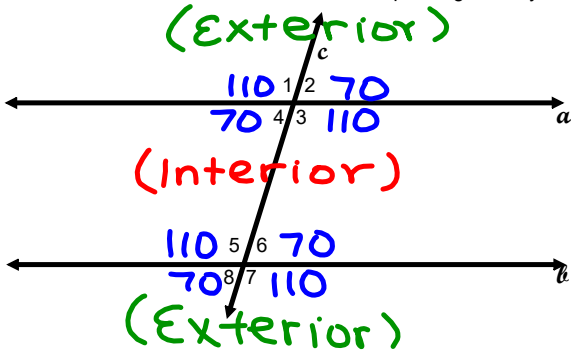
If two parallel lines are cut by a transversal, then the pairs of corresponding angles are congruent (≅).



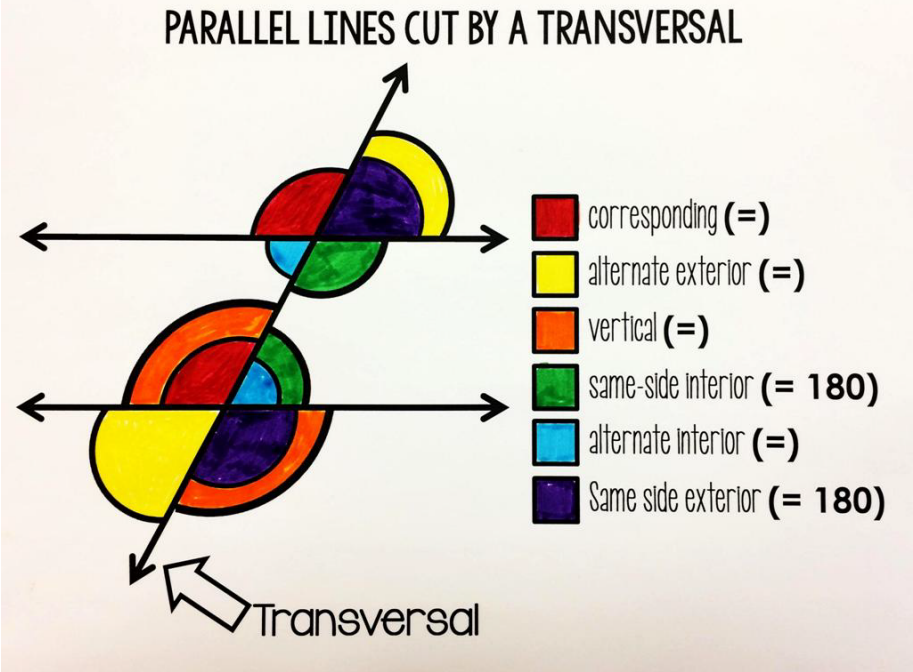
Give Thoughtful Feedback
Respect Others & Their Thoughts
On Task All The Time
Use Soft Voices
Participate Actively
Stay in Your Group

GROUP WORK

In the diagram below, lines a and b are parallel lines cut by transversal line c, forming angles 1-8. Using your knowledge of the meanings of interior, exterior, alternate, consecutive, and corresponding, identify the following angle pairs and describe why.



1. The Corresponding Angles are 1 & 5, 2 & 6, 3 & 7, and 4 & 8.
   Are Corresponding Angles *congruent* or *supplementary*? congruent
2. The Alternate Interior Angles are 4 & 6 and 3 & 5.
   Are Alternate Interior Angles *congruent* or *supplementary*? congruent
3. The Alternate Exterior Angles are 1 & 7 and 2 & 8.
   Are Alternate Exterior Angles *congruent* or *supplementary*? congruent
4. The Consecutive Interior Angles are 4 & 5 and 3 & 6.
   Are Consecutive Interior Angles *congruent* or *supplementary*? supplementary
   Same-side
5. The Consecutive Exterior Angles are 1 & 8 and 2 & 7.
   Same-side
   Are Consecutive Exterior Angles *congruent* or *supplementary*? supplementary


PARALLEL LINES CUT BY A TRANSVERSAL
corresponding (=)
alternate exterior (=)
vertical (=)
same-side interior (= 180)
alternate interior (=)
Same side exterior (= 180)
Transversal