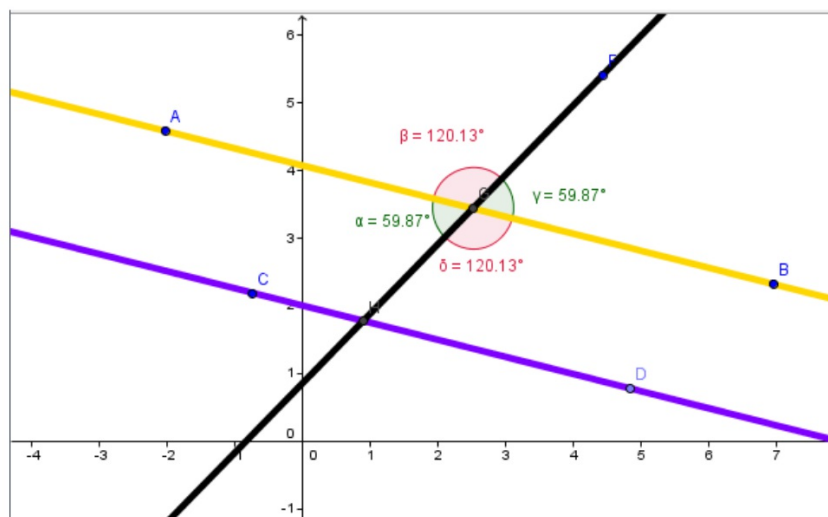


Lesson 3.1 Parallel Lines and Transversals

Learning Target: Find Measures of Angles



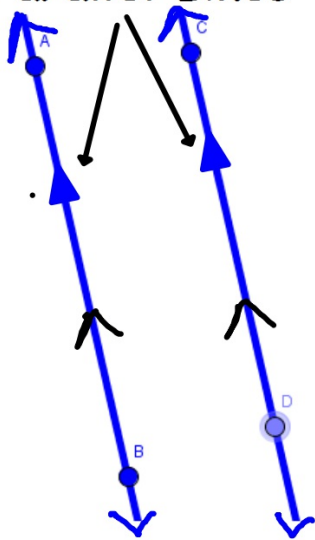
Vocabulary

- Parallel Lines
- Transversal
- Congruent Angles
- Corresponding Angles
- Supplementary Angles
- Vertical Angles
- Alternating Interior Angles
- Alternating Exterior Angles

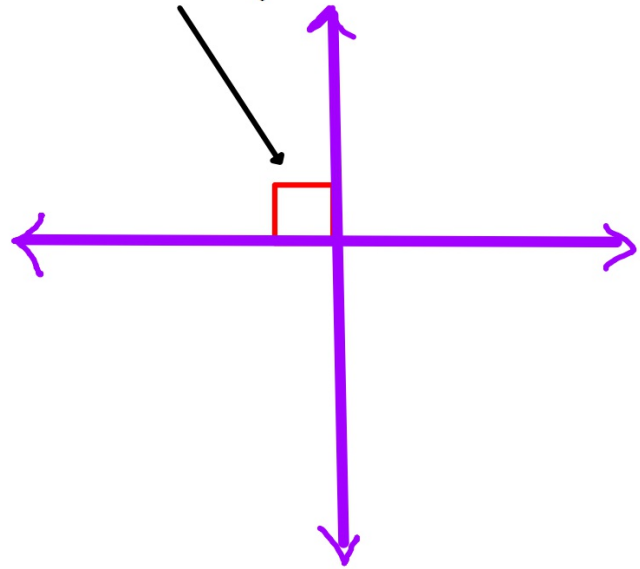
We will be using these angle relationships to prove that certain angles are congruent and therefore have the same measure.

Vocabulary & Punctuation

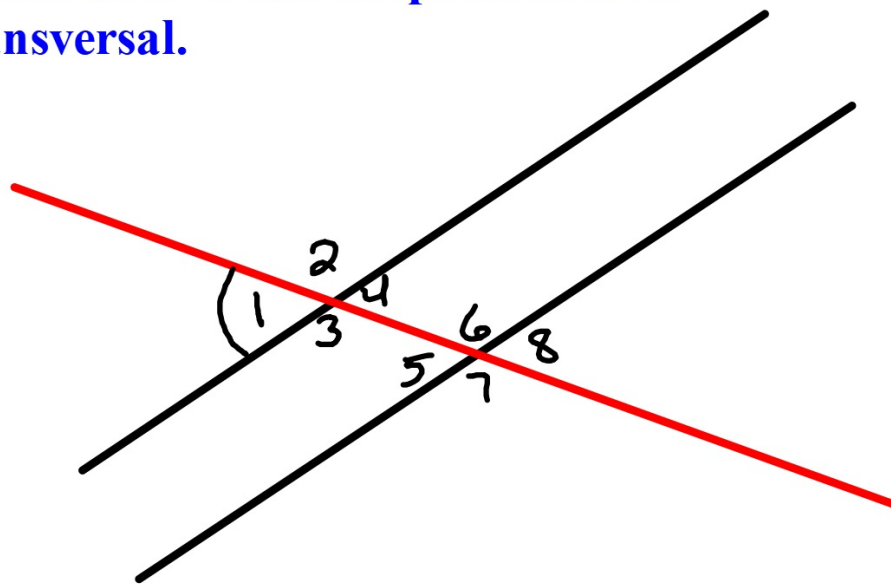
Parallel Lines



Perpendicular Lines

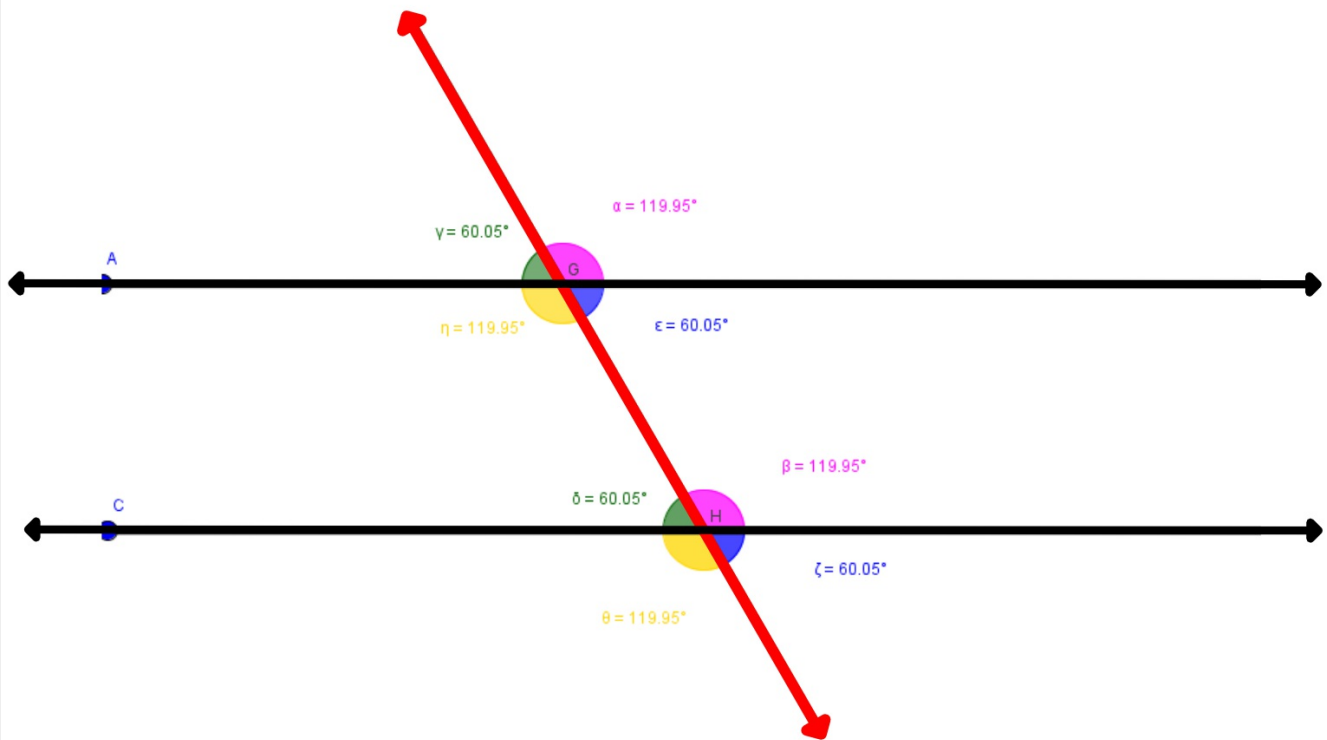


**Use a ruler to draw two parallel lines.
Then use the ruler to cut the parallel lines
with a transversal.**



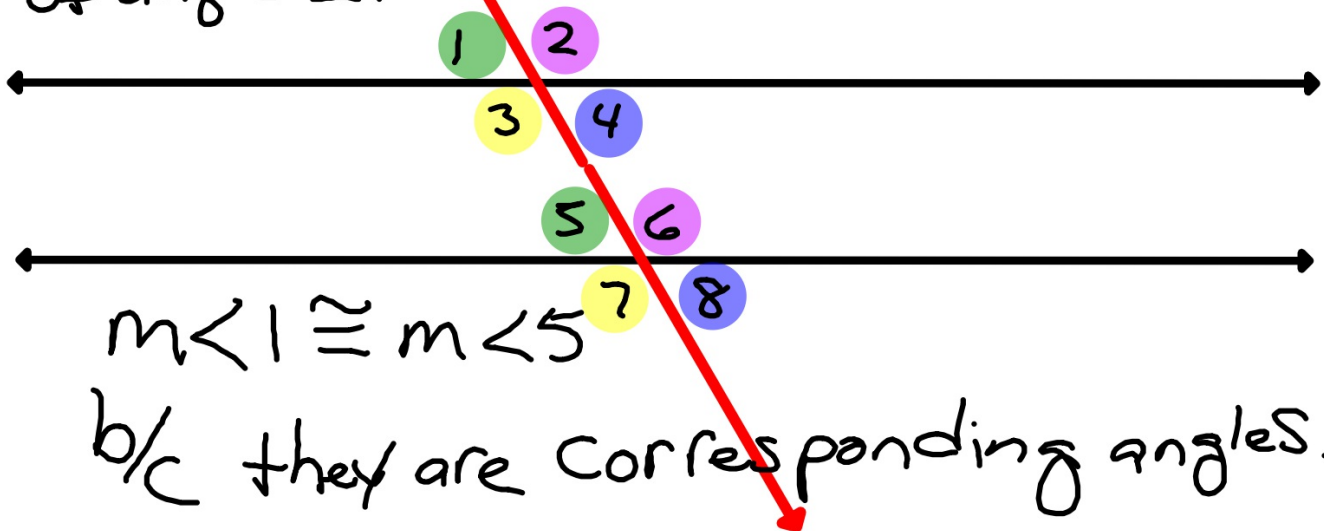
**Talk and turn with your partner.
Which angles appear to be congruent?
Which angles are acute and which are
obtuse? How many angles appear to
have the same measure?**

When parallel lines are cut by a **transversal**,
corresponding angles are congruent

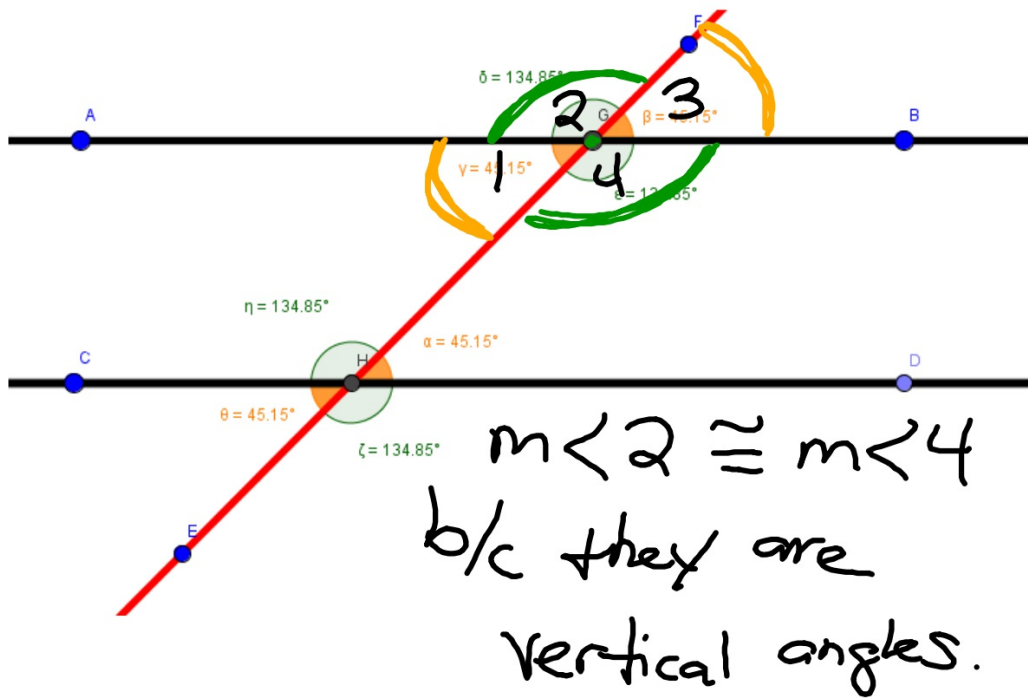


When parallel lines are cut by a transversal,
corresponding angles are congruent

$m\angle 1$
The measure
of angle 1.



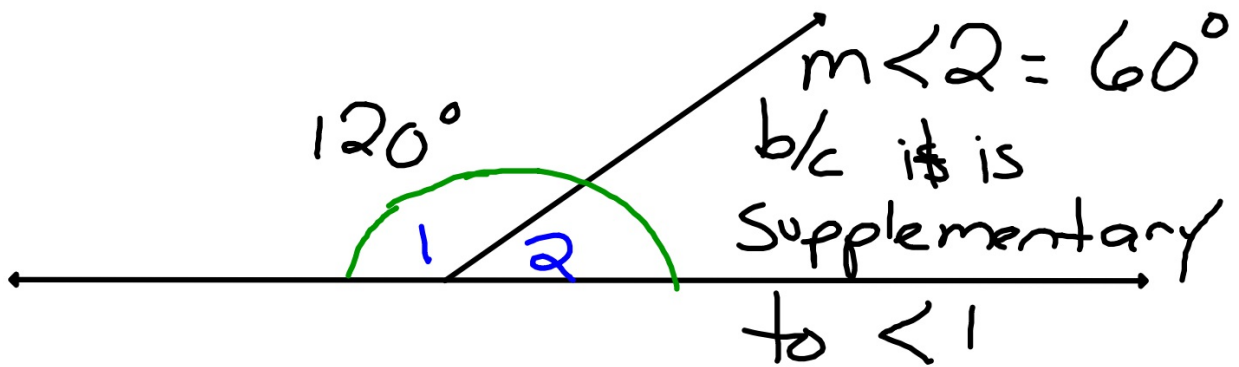
When parallel lines are cut by a transversal, **vertical angles** are congruent.



Supplementary Angles

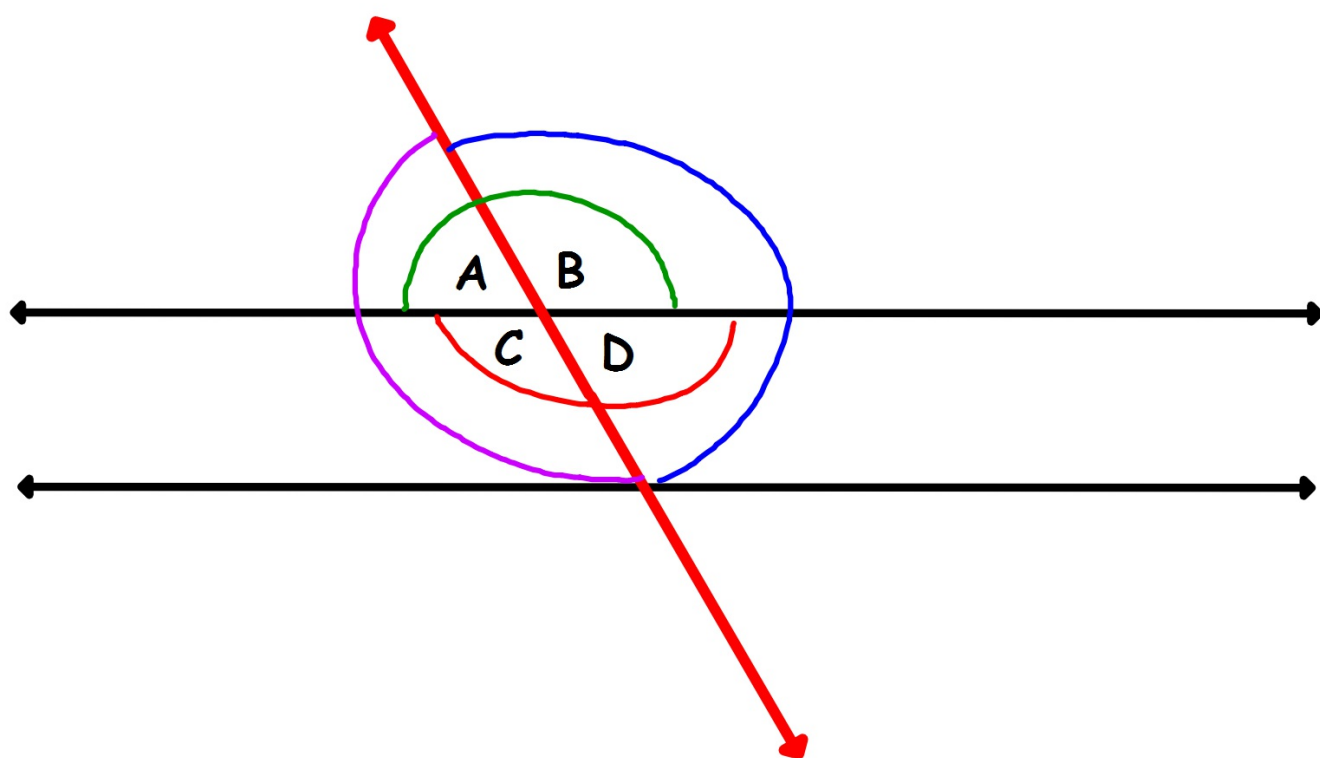
Angles whose measures total **180**

$$m\angle 1 + m\angle 2 = 180^\circ$$

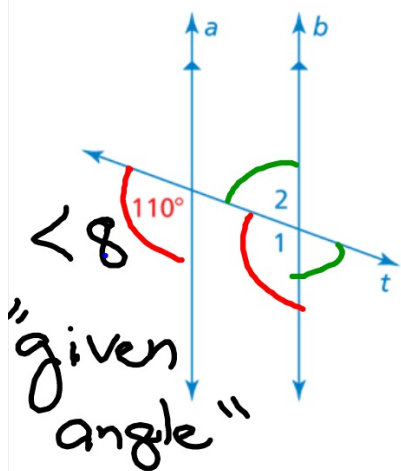


A straight line forms a straight angle
with a measure of **180**

Identify Supplementary Angles



Example 1: Use Corresponding and Supplementary Angles

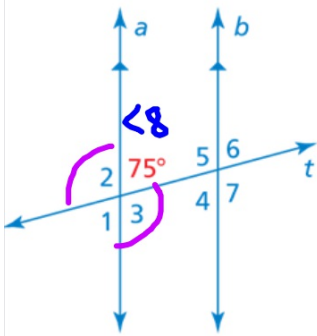


Use the figure to find the measures of (a) $\angle 1$ and (b) $\angle 2$.
And state the reason you know that

$$m\angle 1 = 110^\circ \text{ b/c } \angle 1 \text{ and } \angle 8 \text{ are corresponding angles.}$$

$$m\angle 2 = 70^\circ \text{ b/c } \angle 2 \text{ and } \angle 1 \text{ are supplementary}$$

Example 2: Use Vertical Angles, Corresponding Angles and Supplementary Angles.

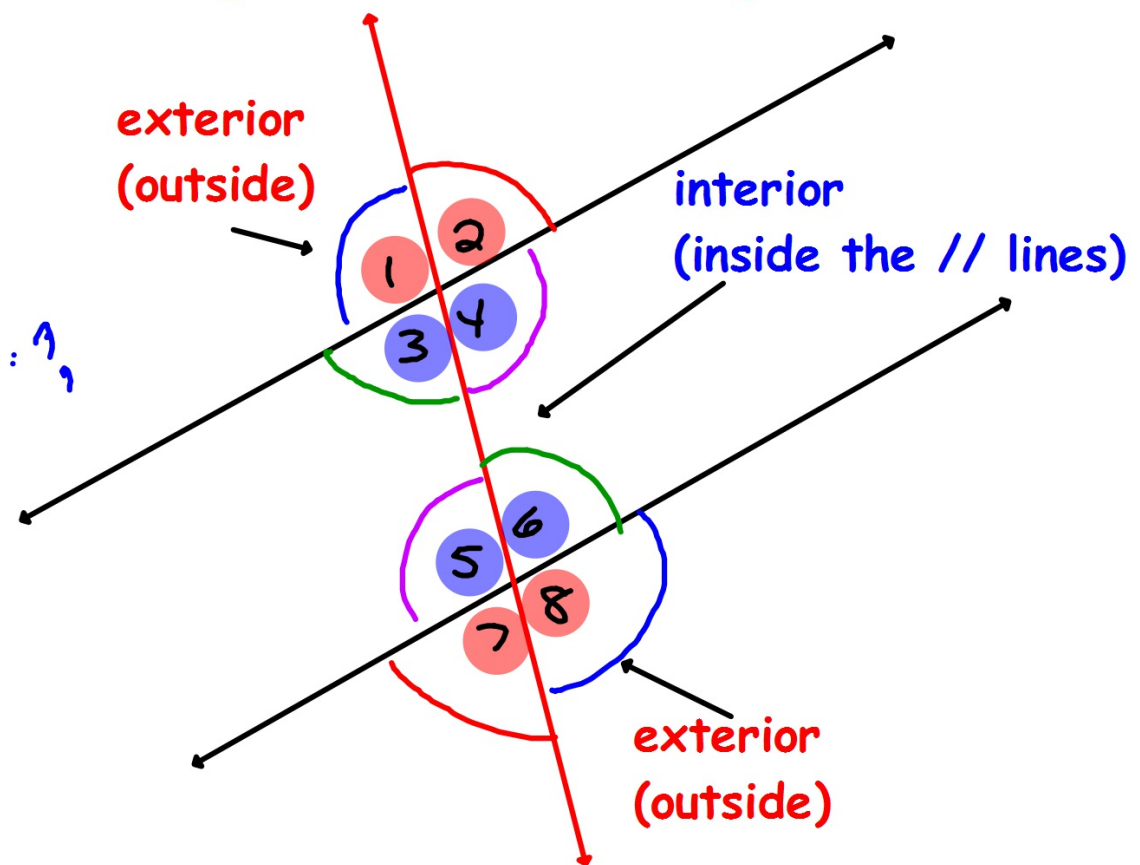


Use the figure to find the measures of the numbered angles.

And state the reason you know that

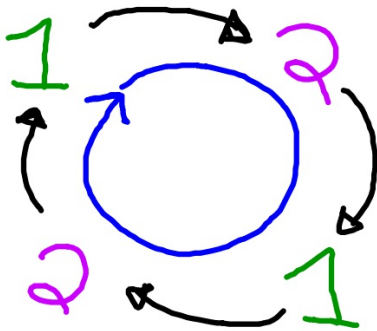
- $m\angle 1 = 75^\circ$ b/c $\angle 1$ and $\angle 8$ are vertical
 $m\angle 2 = 105^\circ$ b/c $\angle 2$ and $\angle 8$ are supplementary
 $m\angle 3 = 105^\circ$ b/c $\angle 3$ and $\angle 2$ are vertical
 $m\angle 4 = 75^\circ$ b/c $\angle 4$ and $\angle 1$ are corresponding
 $m\angle 5 = 105^\circ$ b/c $\angle 5$ and $\angle 2$ are corresponding
 $m\angle 6 = 75^\circ$ b/c $\angle 5$ and $\angle 6$ are supplementary

When two parallel lines are cut by a transversal, 4 interior angles and 4 exterior angles are formed.



Alternate - Alternating
What does it mean?

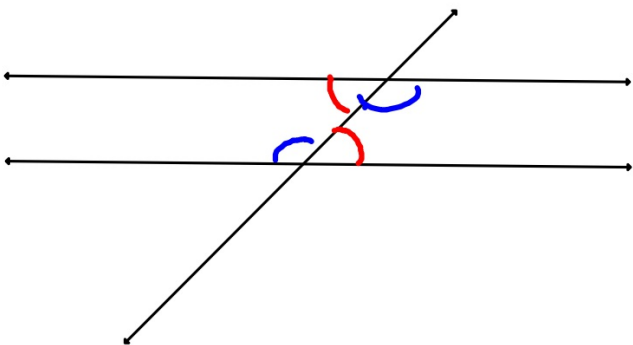
Every-Other-One



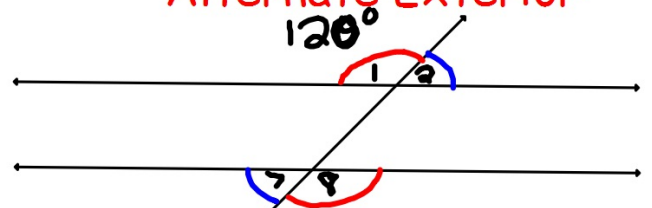
Alternate Interior Angles and Alternate Exterior Angles

When two parallel lines are cut by a transversal
Alternate Interior Angles are congruent and
Alternate Exterior Angles are congruent.

Alternate Interior



Alternate Exterior



$m\angle 8 = 120^\circ$ b/c
 $\angle 8$ & $\angle 1$ are alternate
exterior angles

Example 3: Describe relationships between angles

The photo shows a portion of an airport. Describe the relationship between each pair of angles.

a. angle 6 and angle 8

Supplementary

b. angle 3 and angle 2

Vertical

c. angle 3 and angle 6

Alternating

Exterior

d. angle 2 and angle 7

Alternating Interior



Homework
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