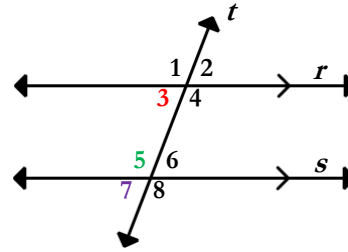


Lines r and s are parallel. Alex is asked to find the relationship between $\angle 3$ and $\angle 5$. Morgan is asked to find the relationship between $\angle 3$ and $\angle 6$.

$$m\angle 3 = 70^\circ$$

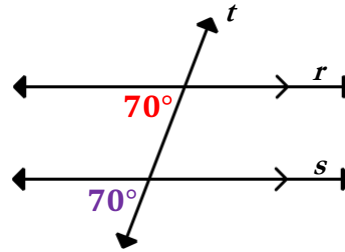


Alex's "Corresponding & Supplementary Angles" Method

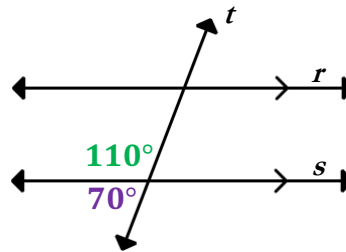
$\angle 3$ and $\angle 7$ are corresponding angles. Since $\angle 3 = 70^\circ$, then $\angle 7$ is the same.

Because $\angle 7$ and $\angle 5$ add to 180° , I know that $180^\circ - 70^\circ = \angle 5$.

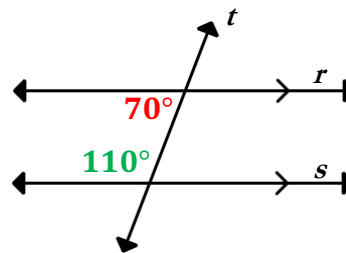
$\angle 3$ and $\angle 5$ add to 180° .



$$70^\circ = 70^\circ$$



$$180^\circ - 70^\circ = 110^\circ$$

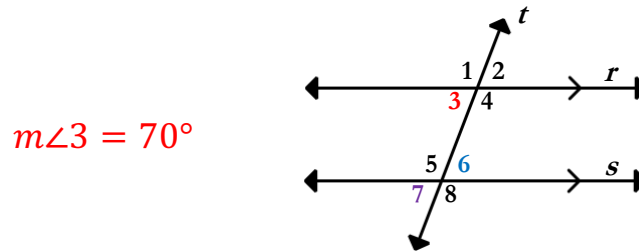


$$70^\circ + 110^\circ = 180^\circ$$

$$m\angle 3 + m\angle 5 = 180$$

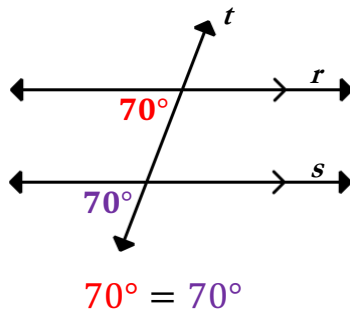


Lines r and s are parallel. Alex is asked to find the relationship between $\angle 3$ and $\angle 5$.
Morgan is asked to find the relationship between $\angle 3$ and $\angle 6$.

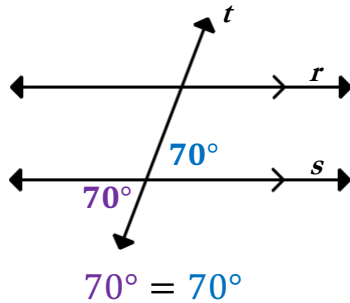


$$m\angle 3 = 70^\circ$$

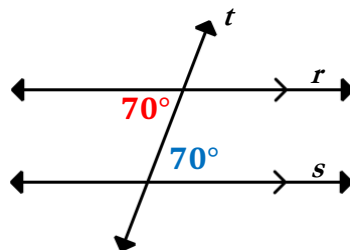
Morgan's "Corresponding & Vertical Angles" Method



$$70^\circ = 70^\circ$$



$$70^\circ = 70^\circ$$



$$70^\circ = 70^\circ$$

$$\angle 3 \cong \angle 6$$

$\angle 3$ and $\angle 7$ are congruent angles. Since $\angle 3 = 70^\circ$, then $\angle 7$ is too.

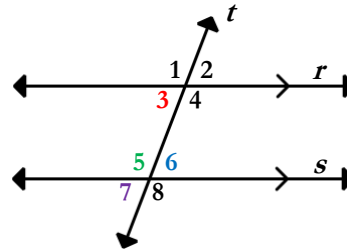
$\angle 7$ and $\angle 6$ are vertical angles, so they are the same.

$\angle 3$ and $\angle 6$ are congruent.



Lines r and s are parallel. Alex is asked to find the relationship between $\angle 3$ and $\angle 5$.
Morgan is asked to find the relationship between $\angle 3$ and $\angle 6$.

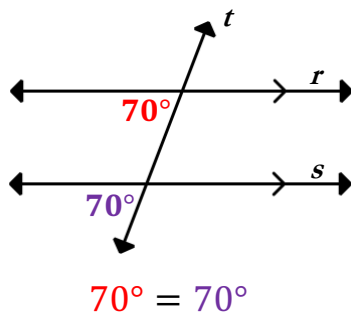
$$m\angle 3 = 70^\circ$$



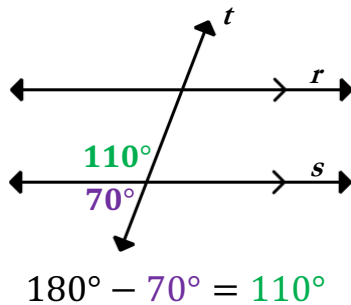
Alex's "Corresponding & Supplementary" Method

Morgan's "Corresponding & Vertical" Method

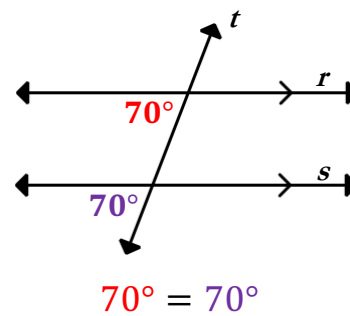
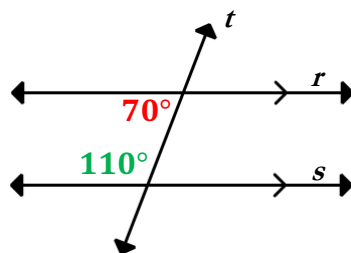
$\angle 3$ and $\angle 7$ are corresponding angles. Since $\angle 3 = 70^\circ$, then $\angle 7$ is the same.



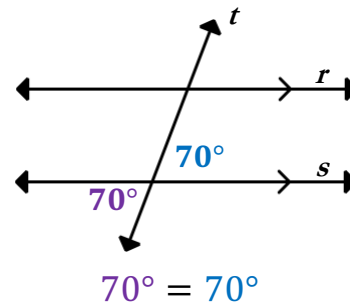
Because $\angle 7$ and $\angle 5$ add to 180° , I know that $180^\circ - 70^\circ = \angle 5$.



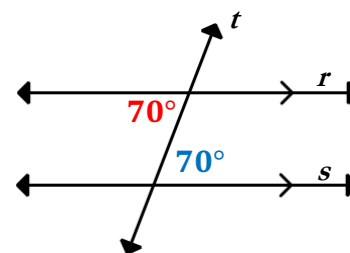
$\angle 3$ and $\angle 5$ add to 180° .



$\angle 3$ and $\angle 7$ are congruent angles. Since $\angle 3 = 70^\circ$, then $\angle 7$ is too.



$\angle 7$ and $\angle 6$ are vertical angles, so they are the same.



$\angle 3$ and $\angle 6$ are congruent.



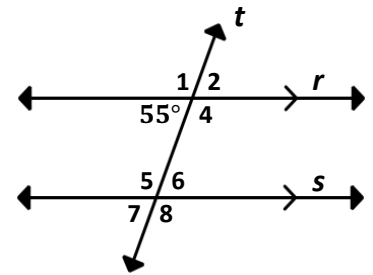
A.3: *AI and SSI Angles*

1) What are the similarities and differences between Alex and Morgan's methods?

Similarities	Differences

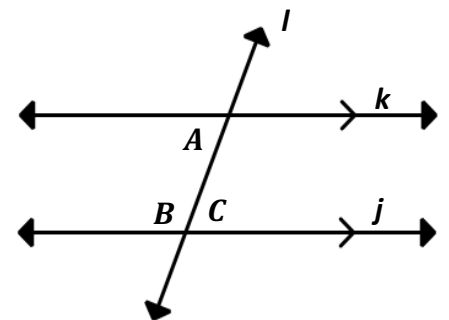
2) Find all of the missing angles. Justify each step you take to find each of the missing angles.

Missing Angle	Justification/Reason
$m\angle 1 =$	
$m\angle 2 =$	
$m\angle 4 =$	
$m\angle 5 =$	
$m\angle 6 =$	
$m\angle 7 =$	
$m\angle 8 =$	



3) Do you think what Alex and Morgan found will be true anytime two parallel lines are cut by a transversal? Why or why not?

4) a) Write an equation for the relationship between A and B .



b) Write an equation for the relationship between A and C .

Lines r and s are parallel. Alex is asking Morgan to find $\angle 3$ and $\angle 5$.
 Morgan is asking Alex to find $\angle 3$ and $\angle 5$.

Morgan and I both learned something new about when two parallel lines are cut by a transversal!

Alex's "Supply"

I learned that same-side interior angles are supplementary.

Morgan noticed that alternate interior angles are congruent.

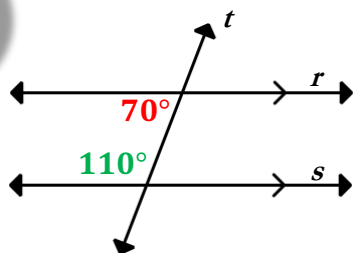
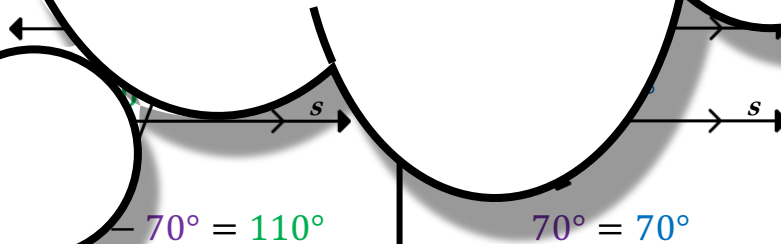
$\angle 3$ and $\angle 7$ are corresponding angles. Since $\angle 3 = 70^\circ$, the $\angle 7$ is the same.

Because $\angle 7$ and $\angle 5$ add to 180° , I know that $180^\circ - 70^\circ = \angle 5$.

$\angle 7$ and $\angle 6$ are vertical angles, so they are the same.

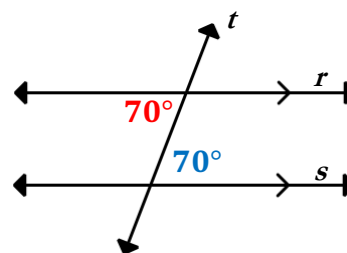
$\angle 3$ and $\angle 5$ add to 180° .

$\angle 3$ and $\angle 6$ are congruent.



$$70^\circ + 110^\circ = 180^\circ$$

$$m\angle 3 + m\angle 5 = 180$$



$$70^\circ = 70^\circ$$

$$\angle 3 \cong \angle 6$$

