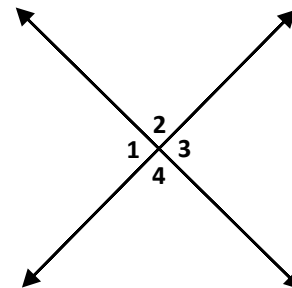A.1: *Supplementary and Vertical Angles*

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

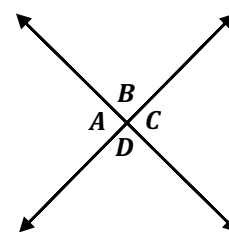| Similarities	Differences

2) The $m\angle 2 = 105°$. Find the measure of all the missing angles.

3) In your own words, define supplementary angles and draw a picture to support your definition.

4) a) Using what you learned from Alex and Morgan's methods, describe what we know about angles that are opposite each other when two lines intersect.

   b) Generalize what you learned about angles that are opposite each other with mathematical statements using angles A, B, C and D.
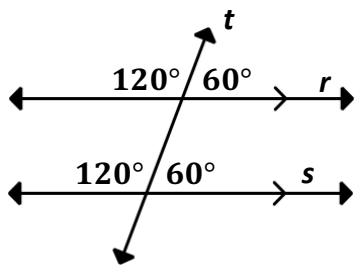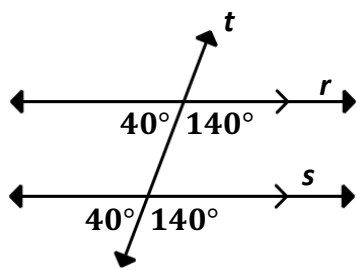
A.2: *Corresponding Angles*

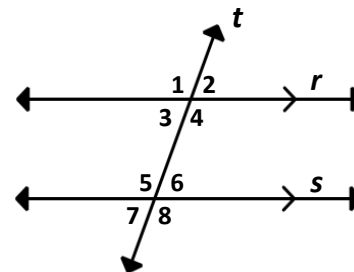1) What are the similarities and differences between Alex and Morgan's methods?

Similarities	Differences

2) Find the measure of the remaining angles for Alex and Morgan.

Alex	Morgan

3) a) Identify all the angles that are congruent to ∠1.

   b) Identify all the angles that are congruent to ∠2.

   c) What do you notice about the location of all the angles congruent to ∠1?

4) If lines *r* and *s* were not parallel, would Morgan still have found that ∠3 ≅ ∠7 and ∠4 ≅ ∠8? Draw a picture to illustrate why or why not.
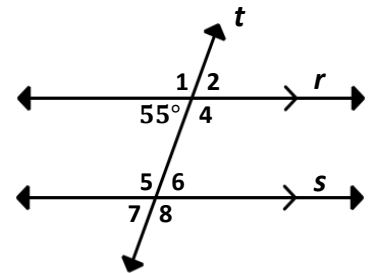
A.3: *Alternate Interior and Same Side Interior Angles*

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

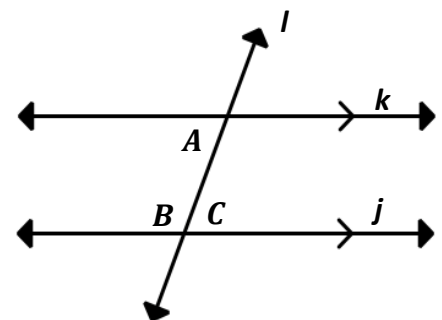| Similarities	Differences

2) Find the measure of all 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) Alex found that $m\angle 3 + m\angle 5 = 180°$ and Morgan found that $\angle 3 \cong \angle 6$. Do you think what they 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 angles *A* and *B*.

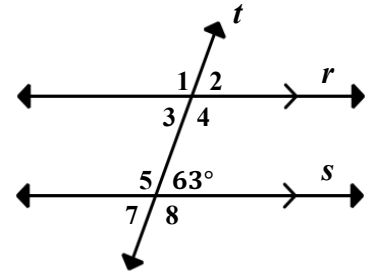   b) Write an equation for the relationship between angles *A* and *C*.

A.4: *Missing Angles*

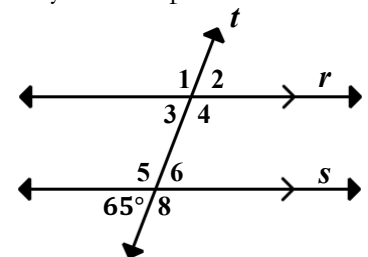1) What are the similarities and differences between Alex and Morgan's methods?

Similarities	Differences

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

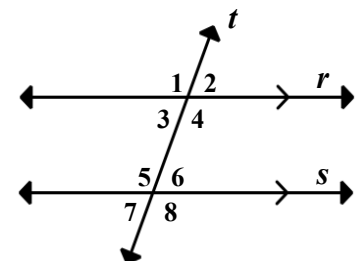| Missing Angle	Justification/Reason
$m\angle 1 =$	
$m\angle 2 =$	
$m\angle 3 =$	
$m\angle 4 =$	
$m\angle 5 =$	
$m\angle 7 =$	
$m\angle 8 =$	

3) a) Find $m\angle 2$ using a method that is different from Alex and Morgan's. Show and justify each step.

   b) Would you suggest Alex's, Morgan's, or your method to a friend? Why?

4) True or false: All of the angles are either congruent to $\angle 1$ or supplementary to $\angle 1$. Circle whether you think it is true or false and explain your reasoning.
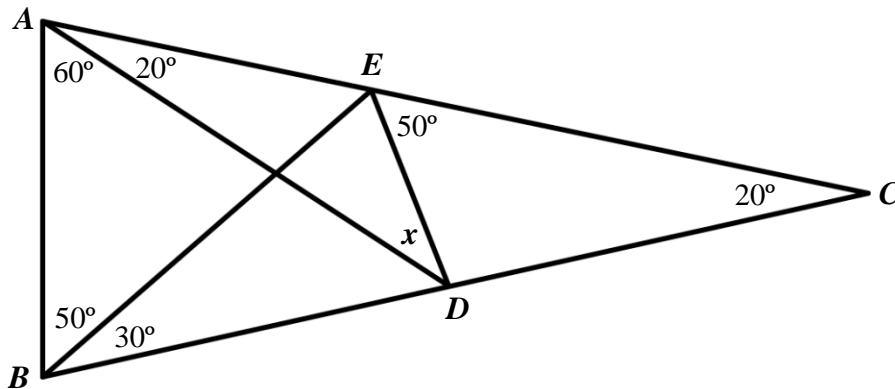
A.5: *Triangle Angle Sum Theorem*

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

Similarities	Differences

2) Find the measure of angle x.

A
60° 20°
E
50°
20° C
x
50°
30°
B
D

3) a) In Morgan's second step, why does she know that the $m\angle 1 = m\angle 4$ and $m\angle 3 = m\angle 5$?

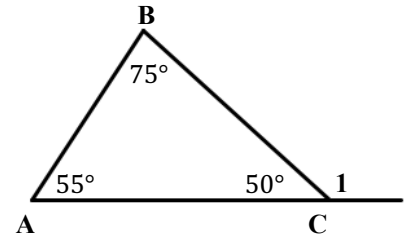   b) Why was she able to use substitution in the fourth step?

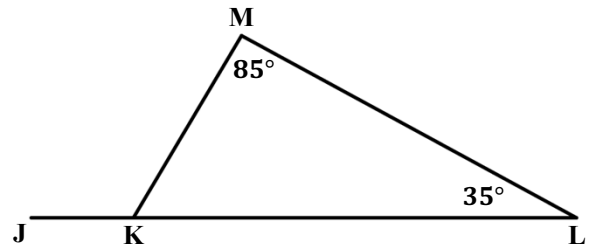4) What would Alex get if he tried his method on a quadrilateral?

A.6: *Exterior Angles*

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

Similarities	Differences

2) Alex found that the $m\angle 1 = 75°$. Morgan found that the $m\angle 1 = 130°$. Who is correct? Explain your reasoning.

3) Find the measure of $\angle JKM$.

4) Based on the figure, describe what you know about the relationship between angles $1, 3,$ and 4.