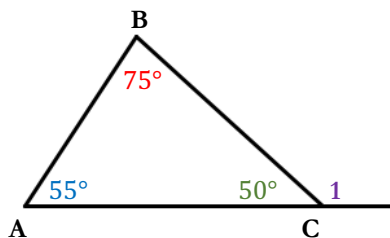


How can you find the measure of $\angle 1$, the exterior angle?

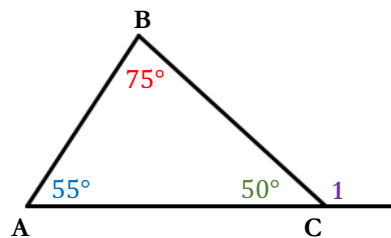


Alex's "Linear Angle" Method

I think the bottom three angles add to 180° because they form a line.

I solved for the measure of $\angle 1$.

I notice that the measure of $\angle 1$ and $\angle B$ are the same.



$$55^\circ + 50^\circ + m\angle 1 = 180^\circ$$

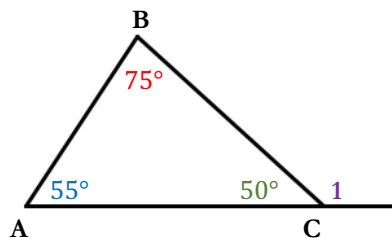
$$105^\circ + m\angle 1 = 180^\circ$$

$$m\angle 1 = 75^\circ$$

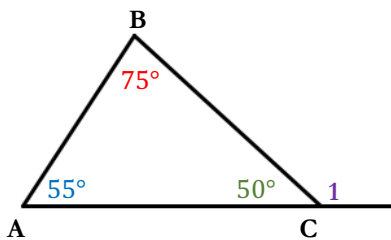
$$m\angle 1 = m\angle B$$



How can you find the measure of $\angle 1$, the exterior angle?



Morgan's "Supplementary Angle" Method



$$50^\circ + m\angle 1 = 180^\circ$$

$$m\angle 1 = 130^\circ$$

$$m\angle 1 = m\angle A + m\angle B$$

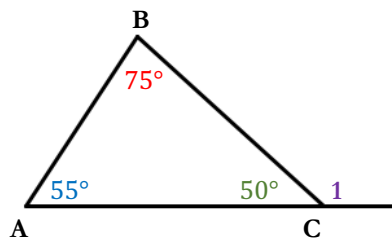
I think 50° and $m\angle 1$ add to 180° because they are supplementary angles.

I found $\angle 1$.

I notice that the measure of $\angle 1$ equals the measure of $\angle A$ plus $\angle B$.



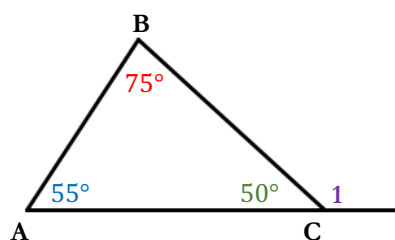
How can you find the measure of $\angle 1$, the exterior angle?



Alex's "Linear Angle" Method

Morgan's "Supplementary Angle" Method

I think the bottom three angles add to 180° because they form a line.



$$55^\circ + 50^\circ + m\angle 1 = 180^\circ$$

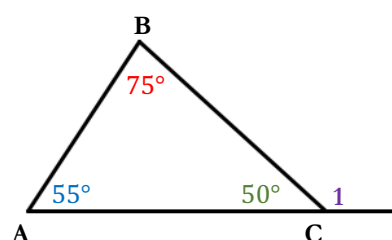
$$105^\circ + m\angle 1 = 180^\circ$$

$$m\angle 1 = 75^\circ$$

$$m\angle 1 = m\angle B$$

I solved for the measure of $\angle 1$.

I notice that the measure of $\angle 1$ and $\angle B$ are the same.



$$50^\circ + m\angle 1 = 180^\circ$$

$$m\angle 1 = 130^\circ$$

$$m\angle 1 = m\angle A + m\angle B$$

I think 50° and $m\angle 1$ add to 180° because they are supplementary angles.

I found $\angle 1$.

I notice that the measure of $\angle 1$ equals the measure of $\angle A$ plus $\angle B$.

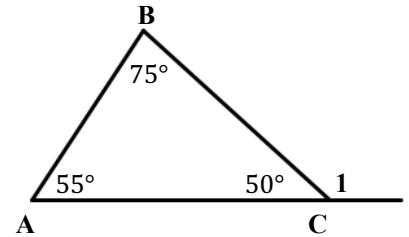


A.6: Exterior Angles

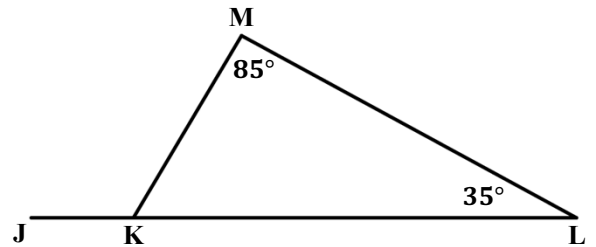
1) What are the similarities and differences between Alex and Morgan's methods?

Similarities	Differences

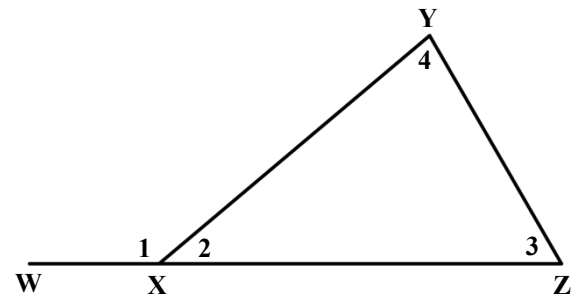
2) Alex found that the $m\angle 1 = 75^\circ$. Morgan found that the $m\angle 1 = 130^\circ$. Who is correct? Explain your reasoning.



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.



How can you find the $m\angle 1$ of $\triangle ABC$?

I realize now that I made a mistake! I could have checked my answer using supplementary angles and realized that angle 1 couldn't be 75° .

Alex's "Tip"

Method

Now I know that the exterior angle of a triangle is always equal to the sum of the two interior angles that are furthest away from the exterior angle.

I think the three angles $\angle 1$, $\angle A$, and $\angle B$ form a line. $\angle 1 + \angle A + \angle B = 180^\circ$ because they form a line.

$\angle 1 + \angle A + \angle B = 180^\circ$
 $m\angle 1 + 40^\circ + 65^\circ = 180^\circ$
 $m\angle 1 + 105^\circ = 180^\circ$
 $m\angle 1 = 180^\circ - 105^\circ$
 $m\angle 1 = 75^\circ$

I solved for the measure of $\angle 1$.

I found $\angle 1$.

I notice that the measure of $\angle 1$ and $\angle B$ are the same.

$$m\angle 1 = m\angle B$$

$$m\angle A + m\angle B = m\angle 1$$

I notice that the measure of $\angle 1$ equals the measure of $\angle A$ plus $\angle B$.

