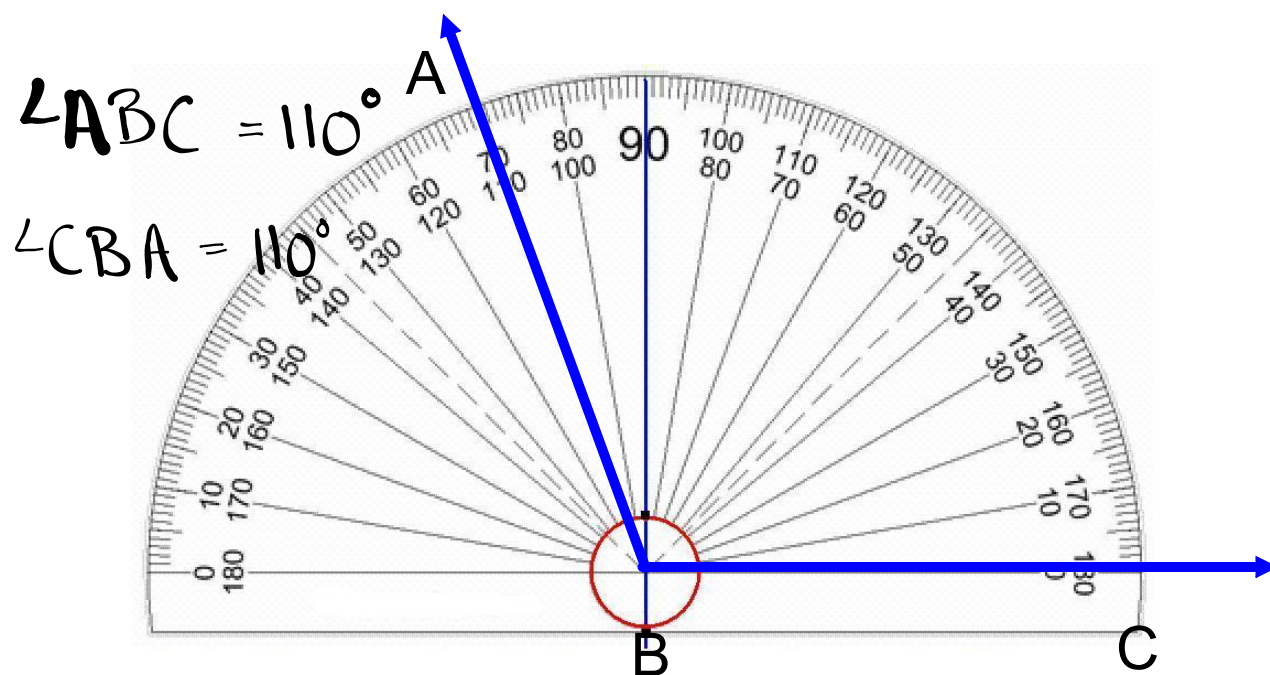
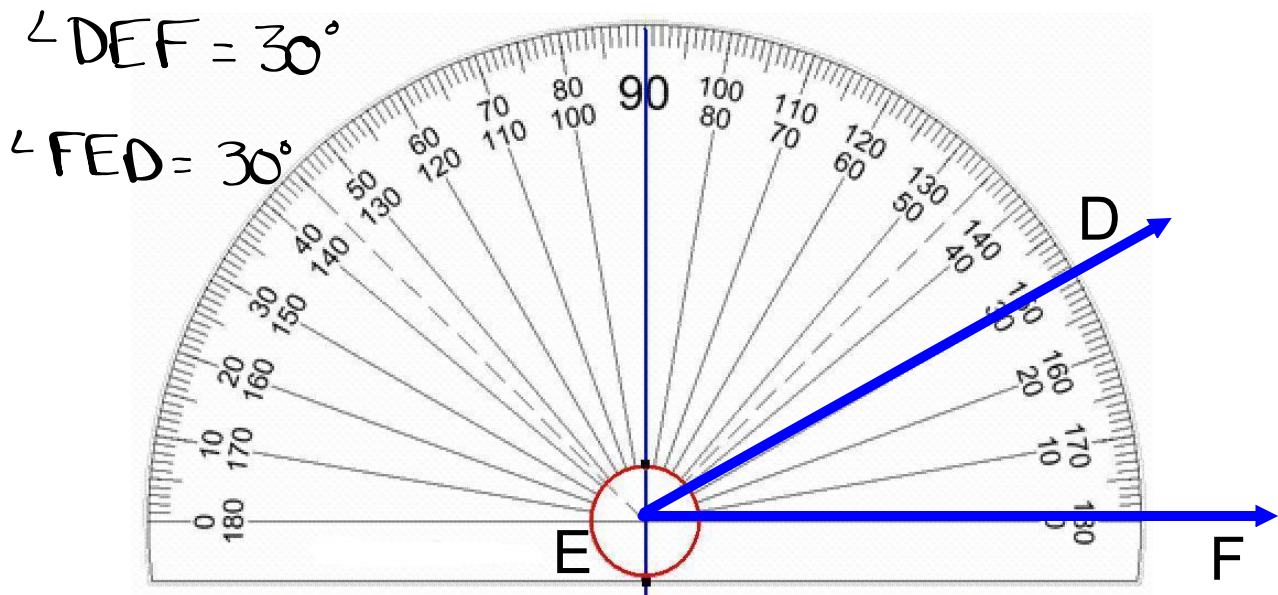


Angles

45°



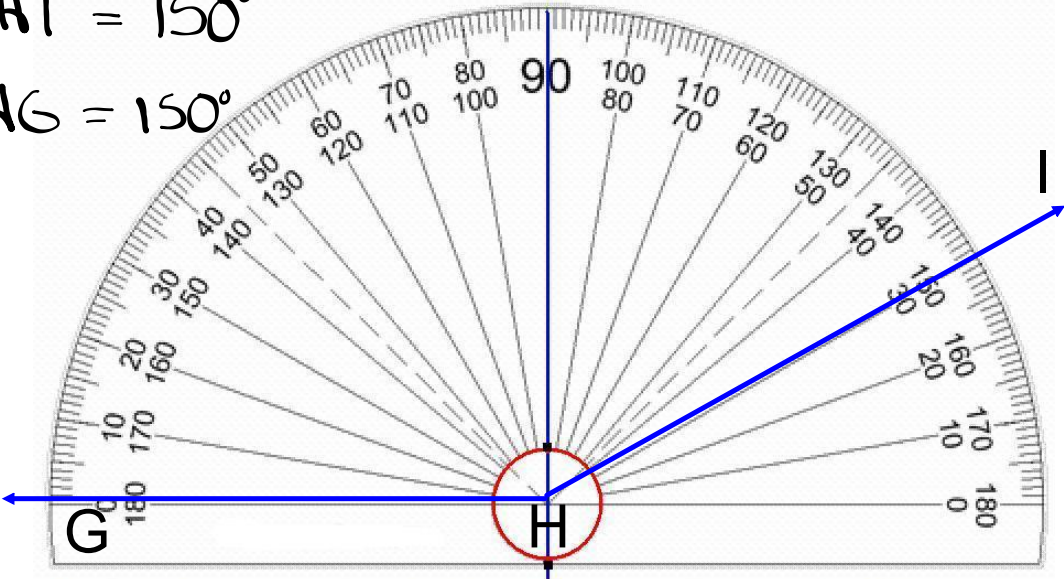
- Obtuse angles are greater than 90°

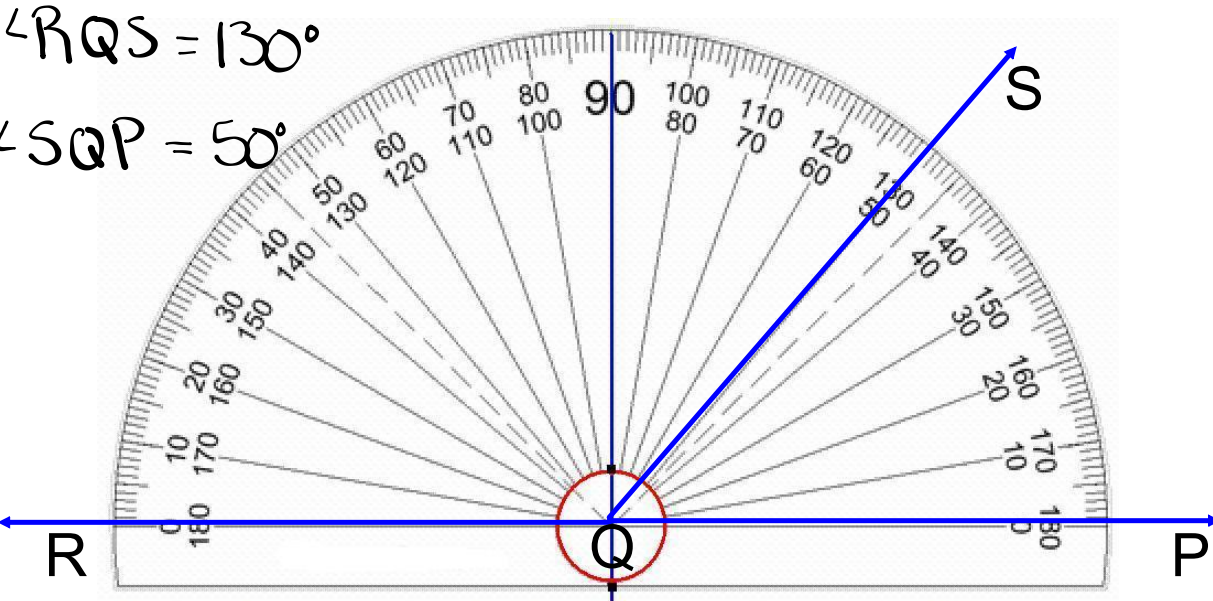


- acute angles are less than 90°

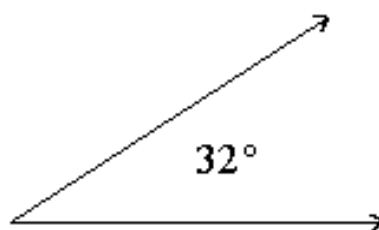
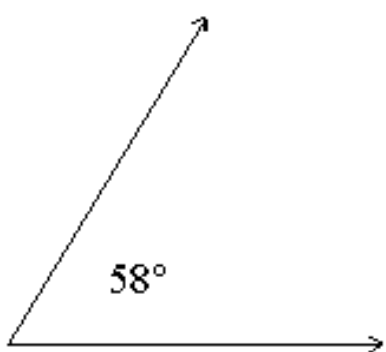
$\angle GHI = 150^\circ$

$\angle IHG = 150^\circ$



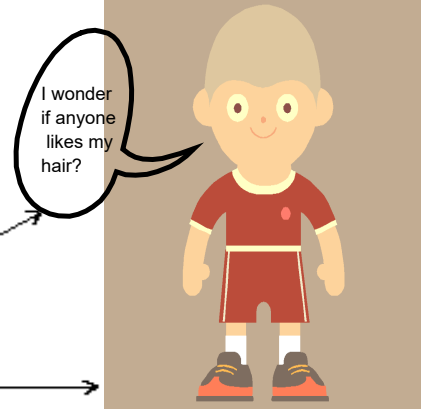
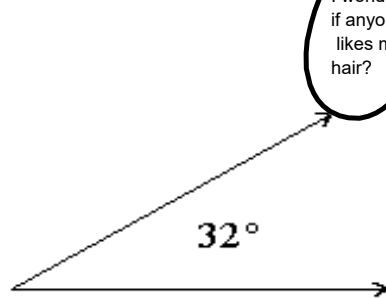
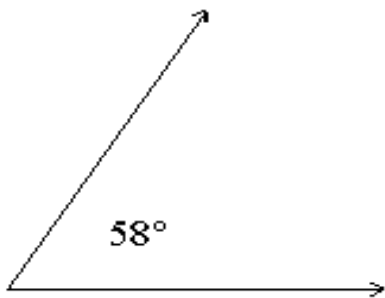


These two angles are complementary.

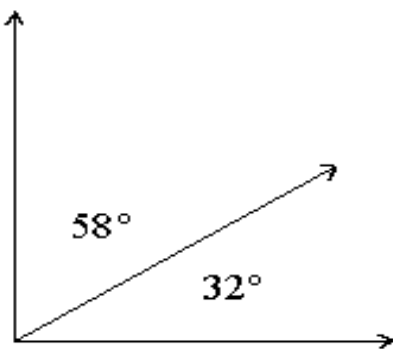


Why?

These two angles are complementary.



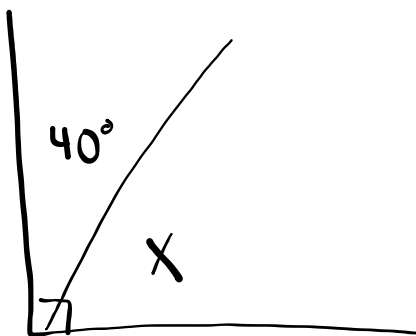
Note that these two angles can be "pasted" together to form a right angle!



$$58^\circ + 32^\circ = 90^\circ$$

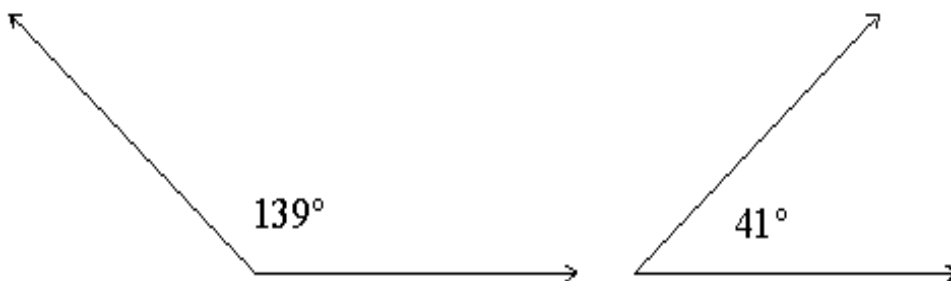
* Complementary angles add up to 90° .

Ex:



$$\begin{aligned}
 X + 40^\circ &= 90^\circ \\
 X &= 90^\circ - 40^\circ \\
 X &= 50^\circ
 \end{aligned}$$

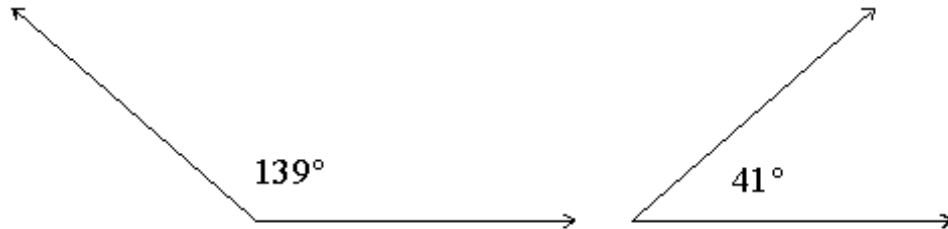
These two angles are supplementary.



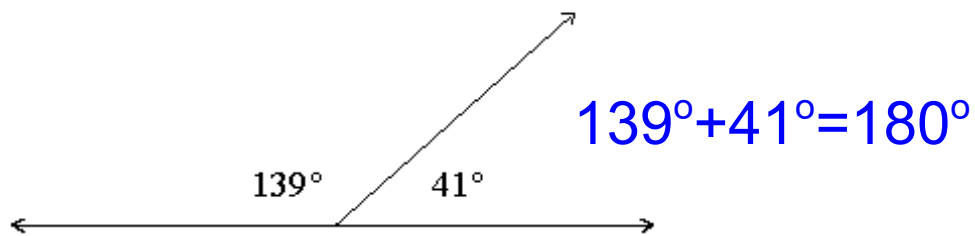
Why?



These two angles are supplementary.

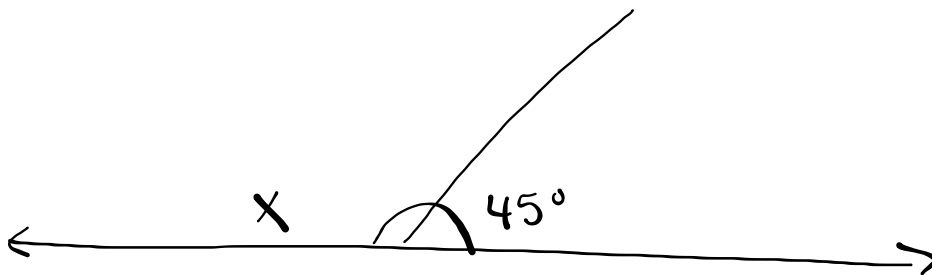


Note that these two angles can be "pasted" together to form a straight line!



* Supplementary angles add up to 180° .

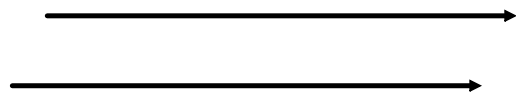
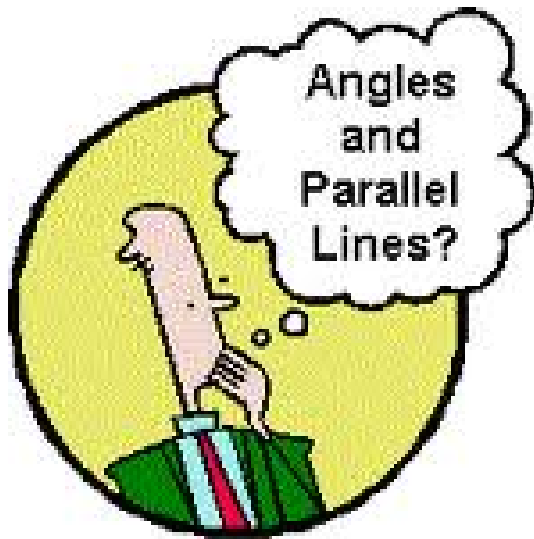
Ex.:



$$X + 45^\circ = 180^\circ$$

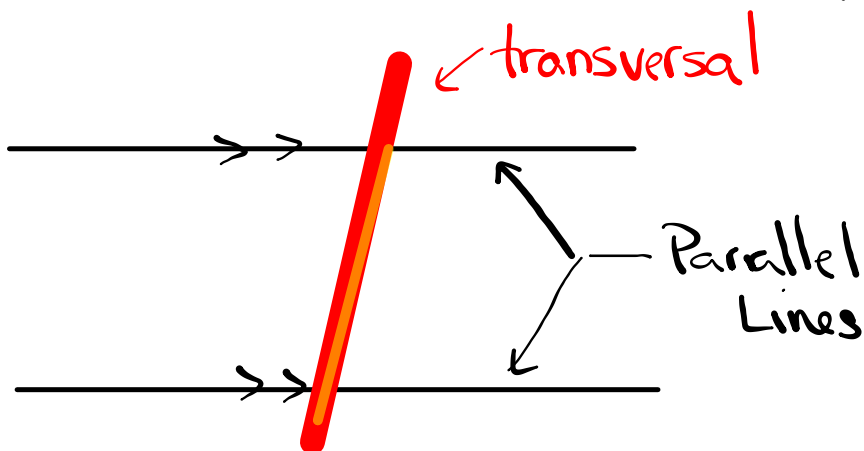
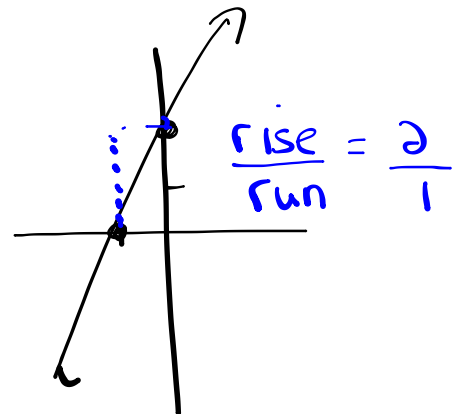
$$X = 180^\circ - 45^\circ$$

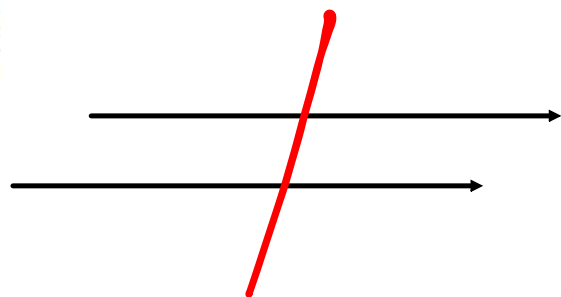
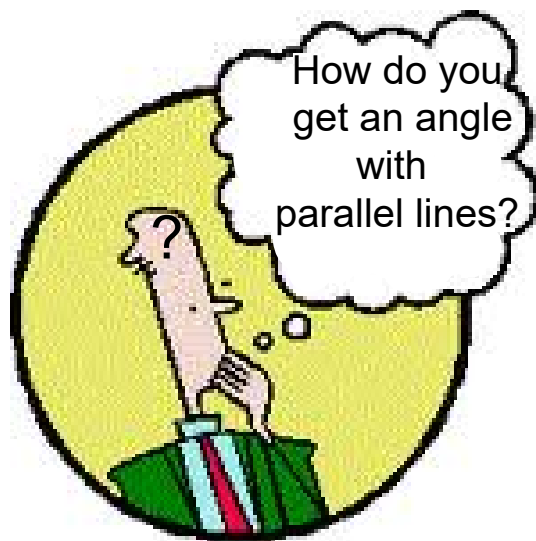
$$X = 135^\circ$$

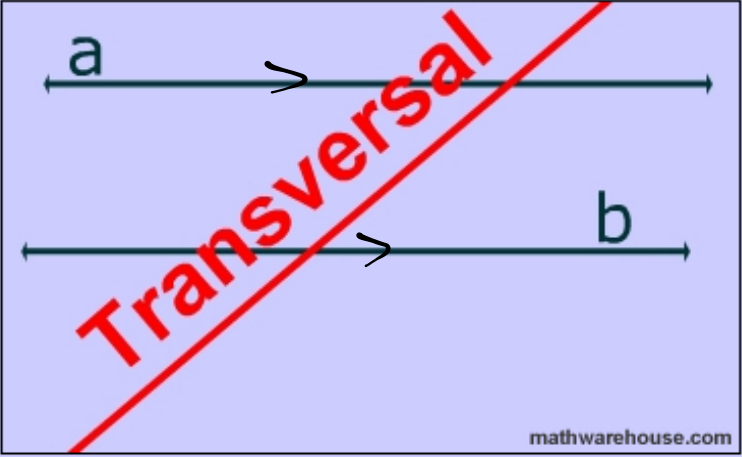


Parallel Lines:

- Same Slope
- Never touch or Intersect



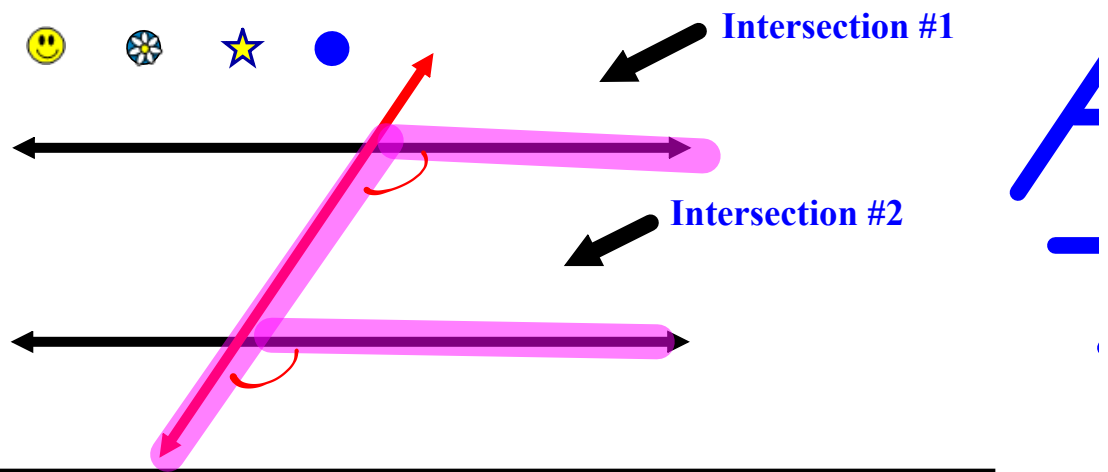





A transversal creates several distinct types of angles. The red line on the left is a transversal that intersects line \bar{a} and line \bar{b} .

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Corresponding Angles (F Rule)

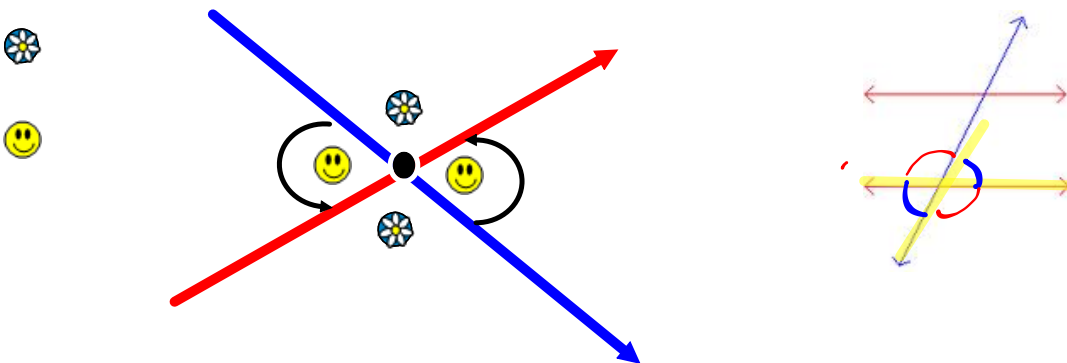


thinking



Angles that occupy the same relative position in two different intersections.

Vertically Opposite Angles (X Rule)



Only share a vertex!

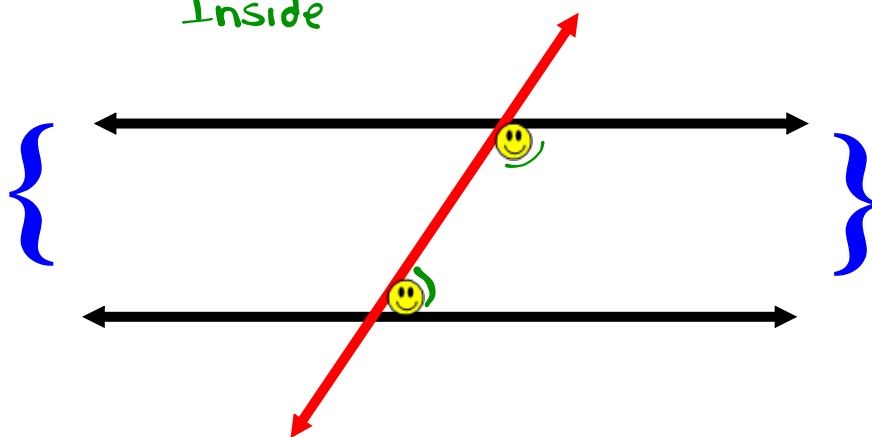
thinking



Vertically opposite
angles
are equal.

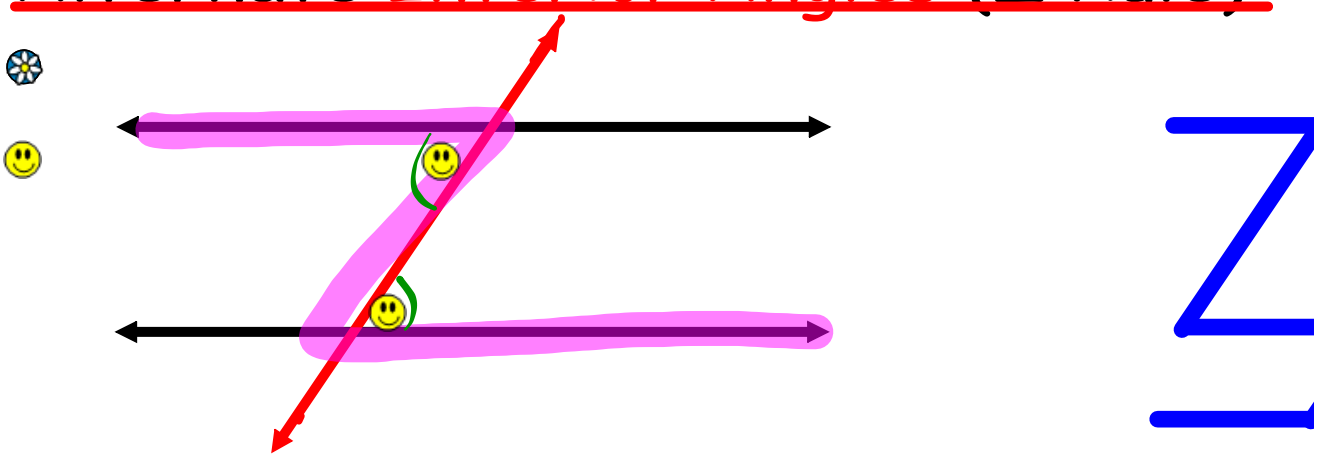
Interior Angles

Inside



Angles between
two main lines are
Interior Angles

Alternate Interior Angles (Z Rule)

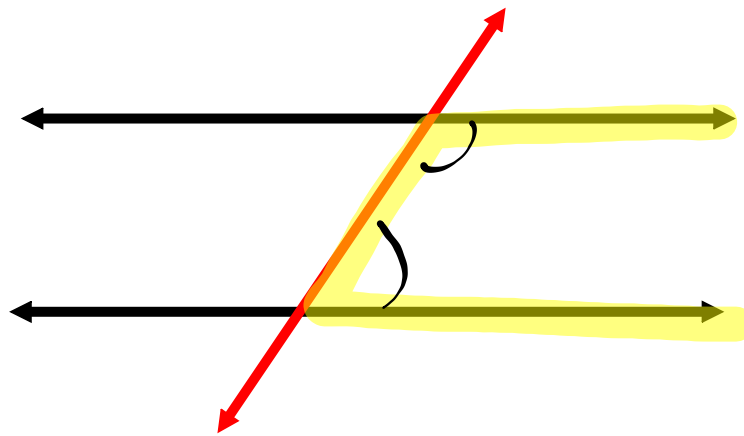


thinking

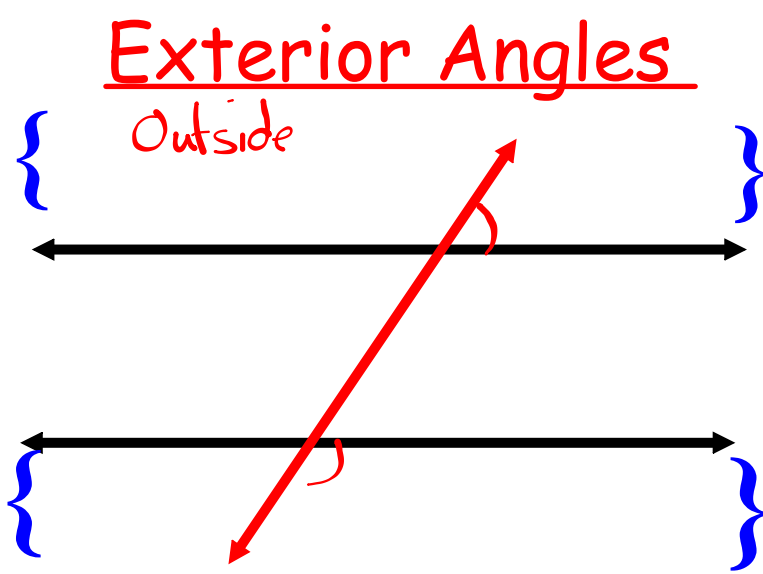


Alternate Interior
angles
are equal.

Co-Interior Angles - Same Side (C Rule)

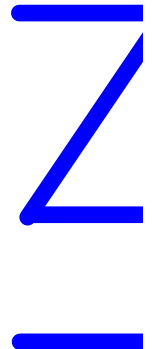
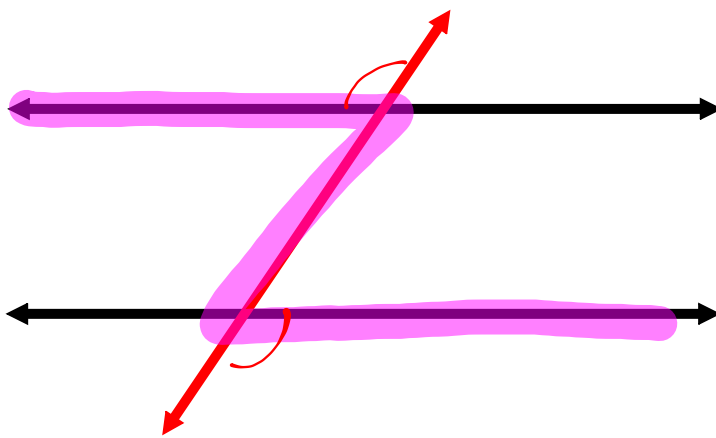


<p>thinking</p>  <p>THE BOX</p>	<p>Interior angles (same side) add to 180°.</p>
--	--



Angles outside the two main lines are **Exterior Angles**

Alternate Exterior Angles (Z Rule)

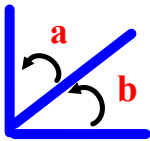


thinking



Alternate Exterior
angles
are equal.

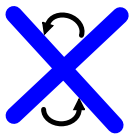
Let's Sum It Up



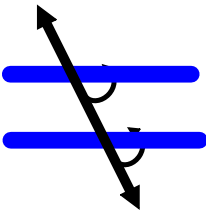
Rule - **Complimentary angles** a & b add up to 90°



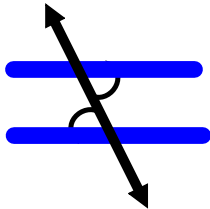
Rule - **Supplementary angles** a & b add up to 180°



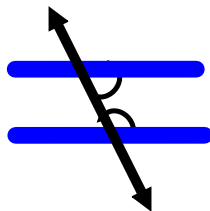
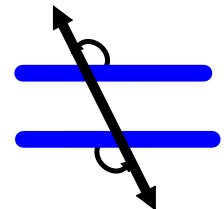
Rule - **Vertically Opposite angles** are equal



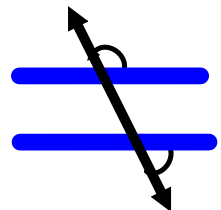
Rule - **Corresponding angles** are equal



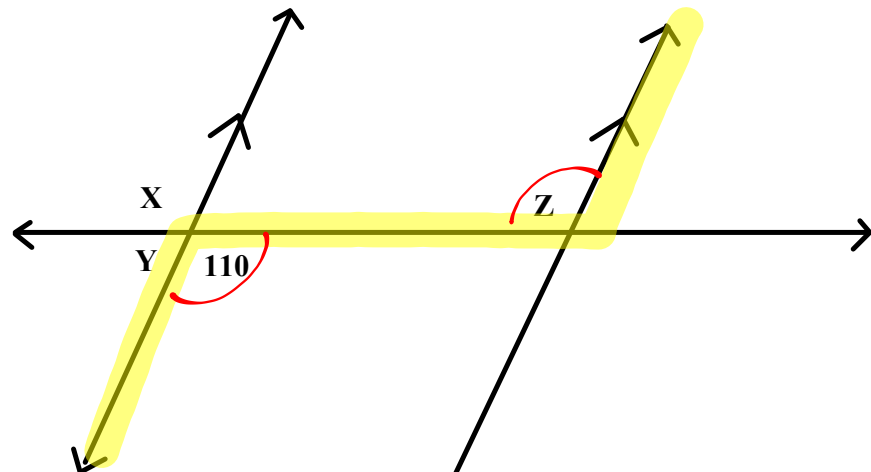
Rule - **Alternate Interior angles** are equal
Alternate Exterior angles are equal



Rule - **Co-interior angles** add up to 180°
Co-Exterior angles add up to 180°



Using 110° as your reference, determine the value of each unknown angle, and give the reason.

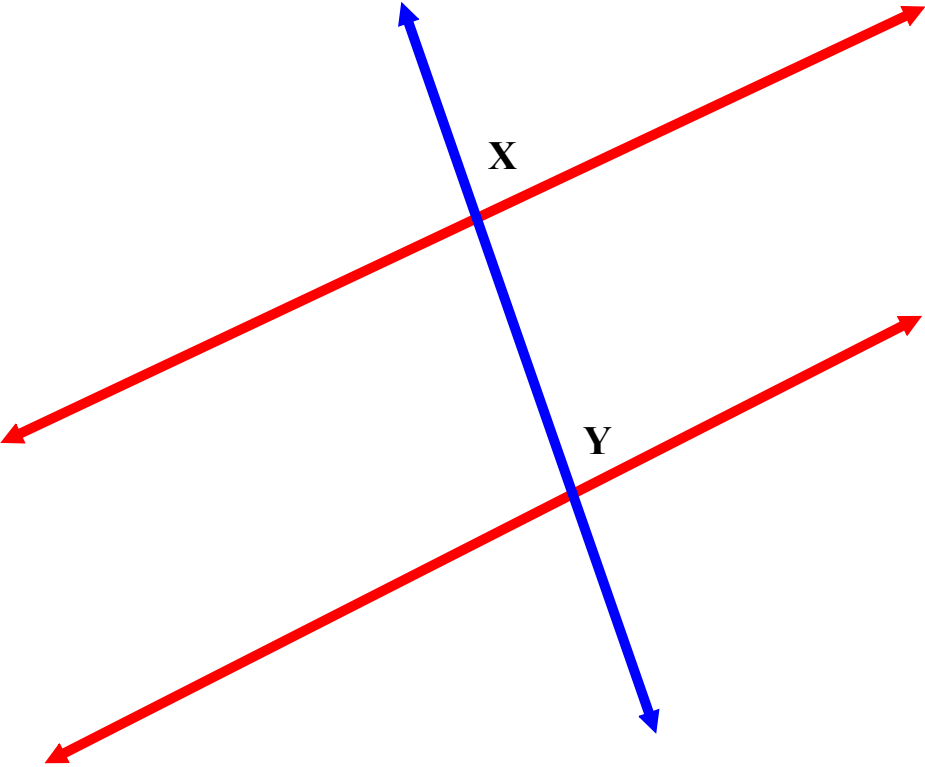


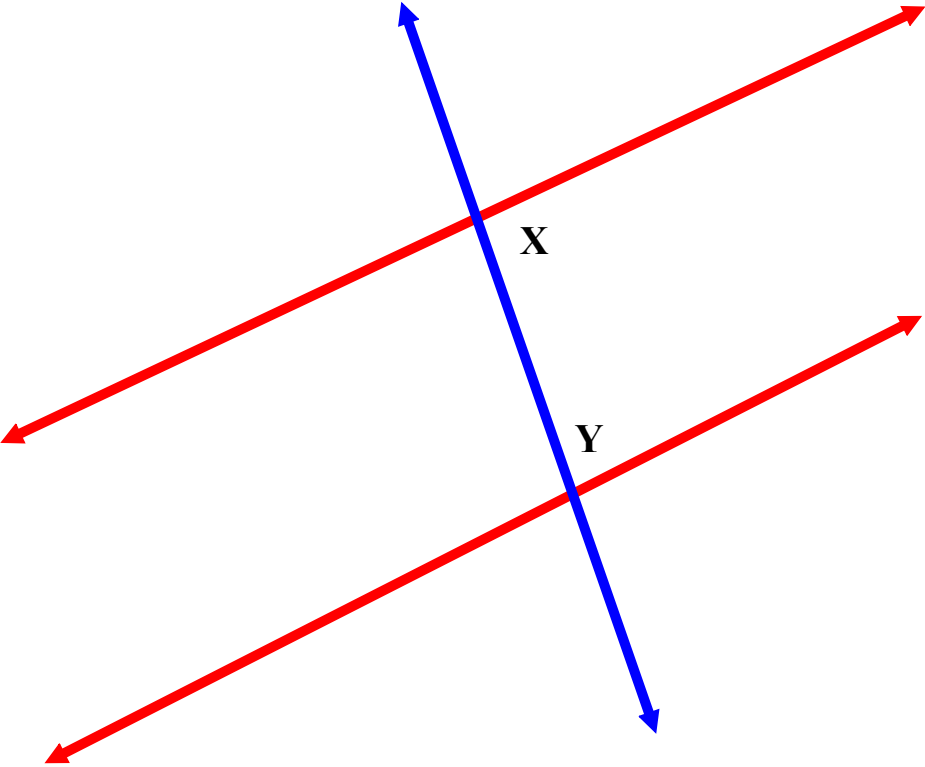
$$\angle X = \underline{110^\circ}$$

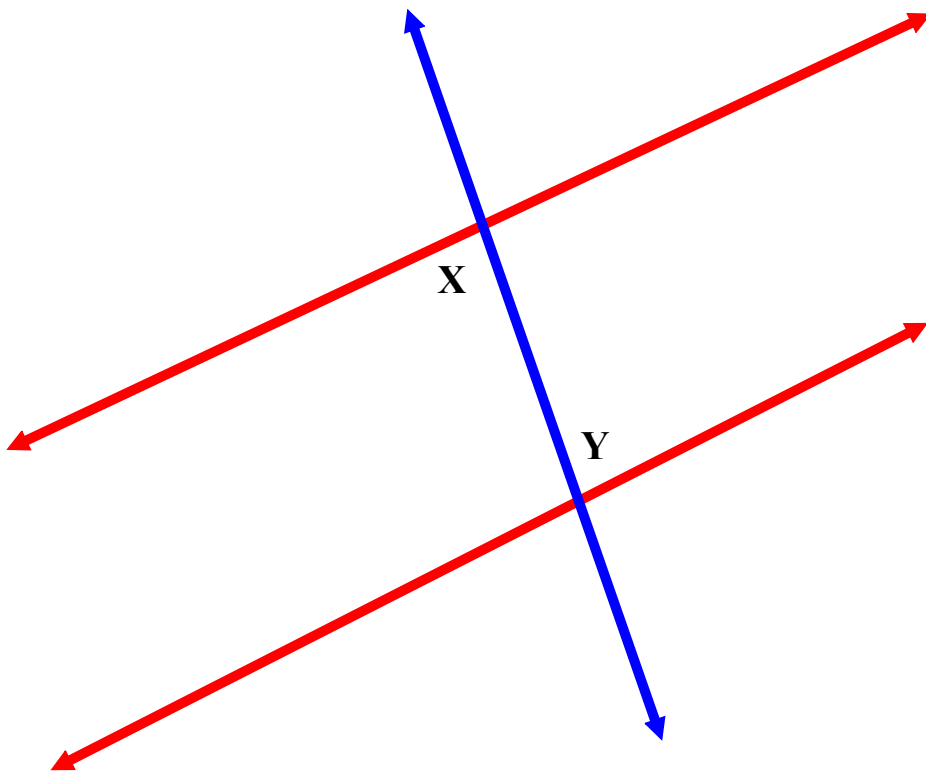
$$\angle Y = \underline{70^\circ}$$

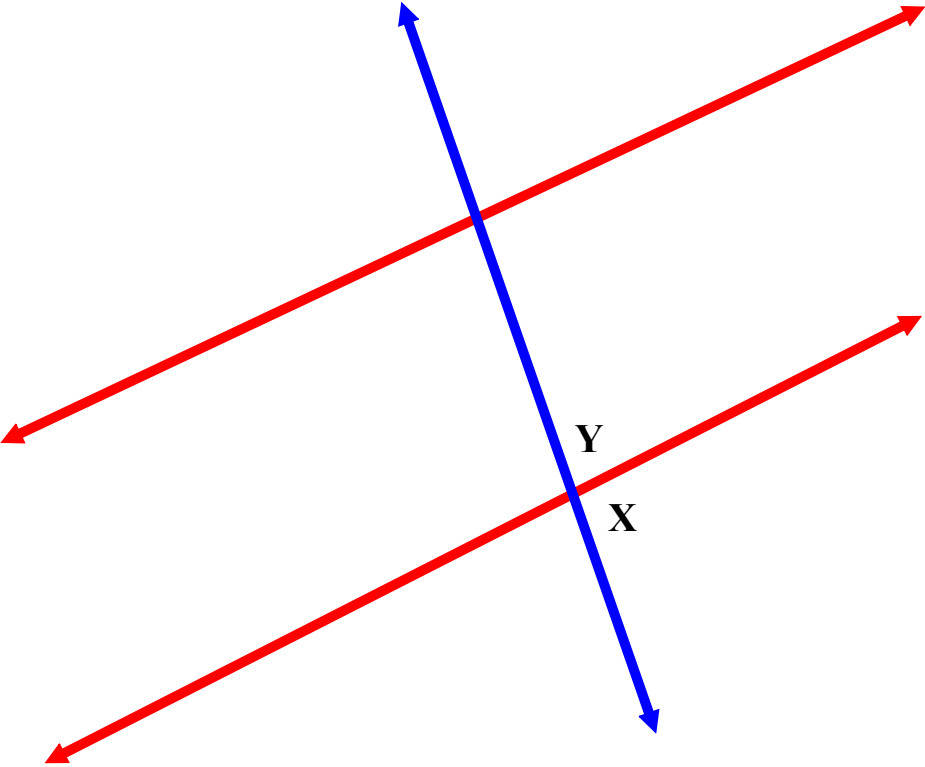
$$\angle Z = \underline{110^\circ}$$

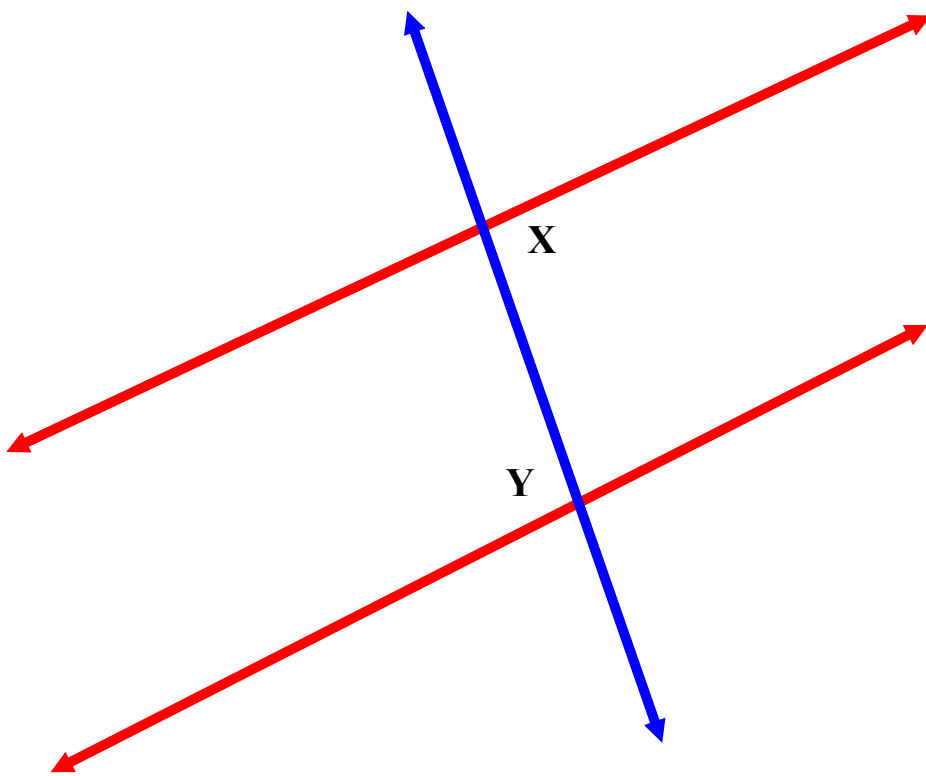
vertically opposite (X)
supplementary angles (add to 180)
alternate interior (Z)

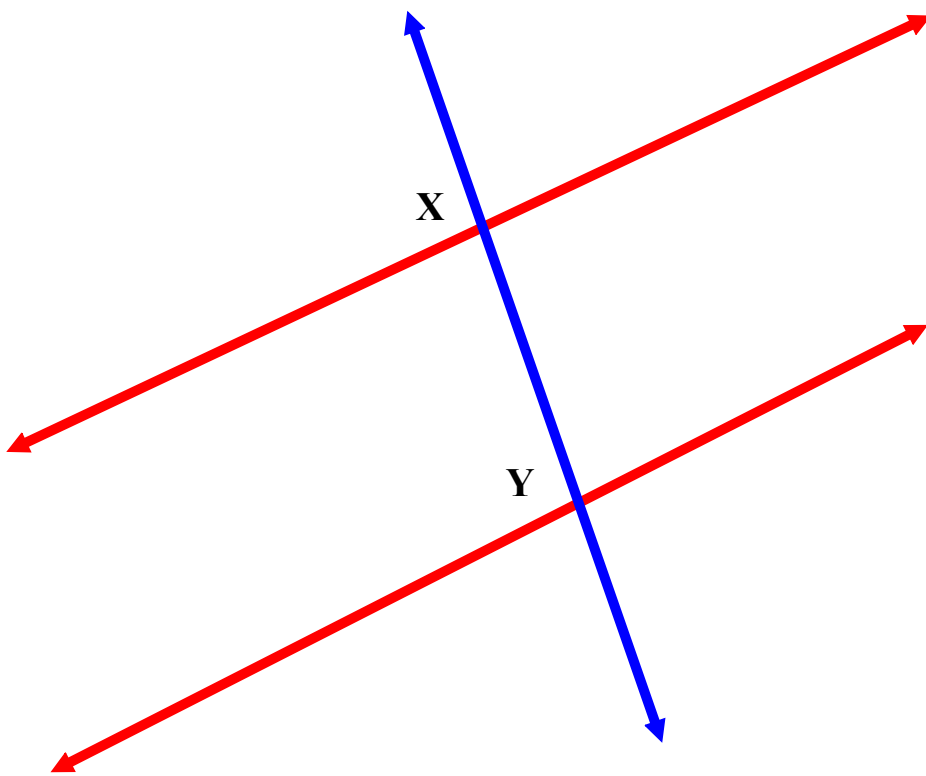


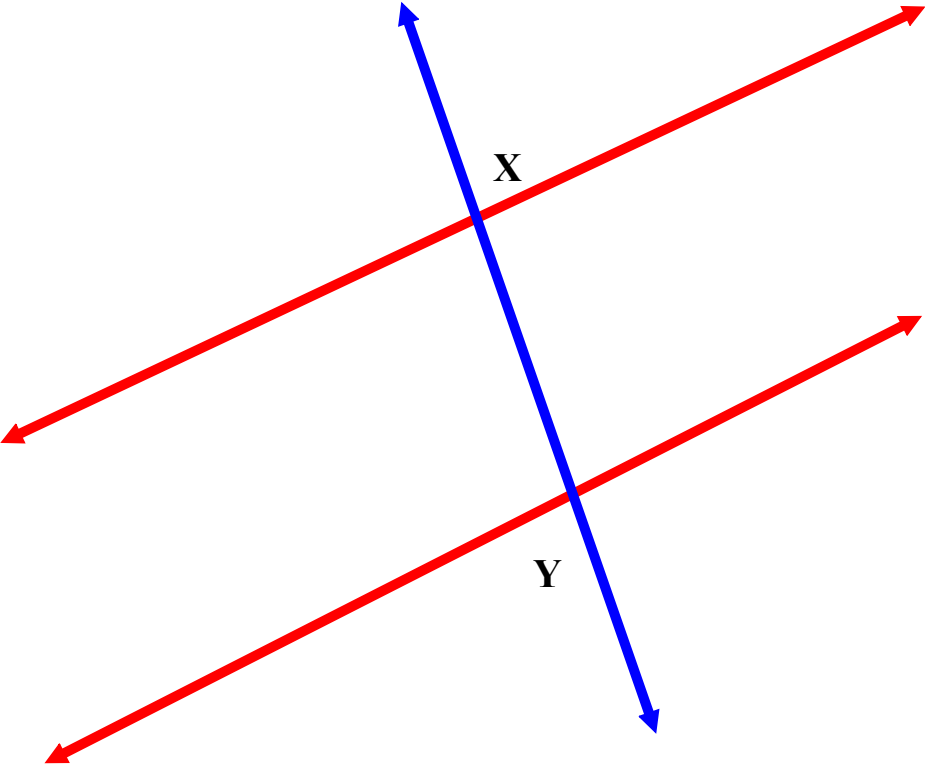


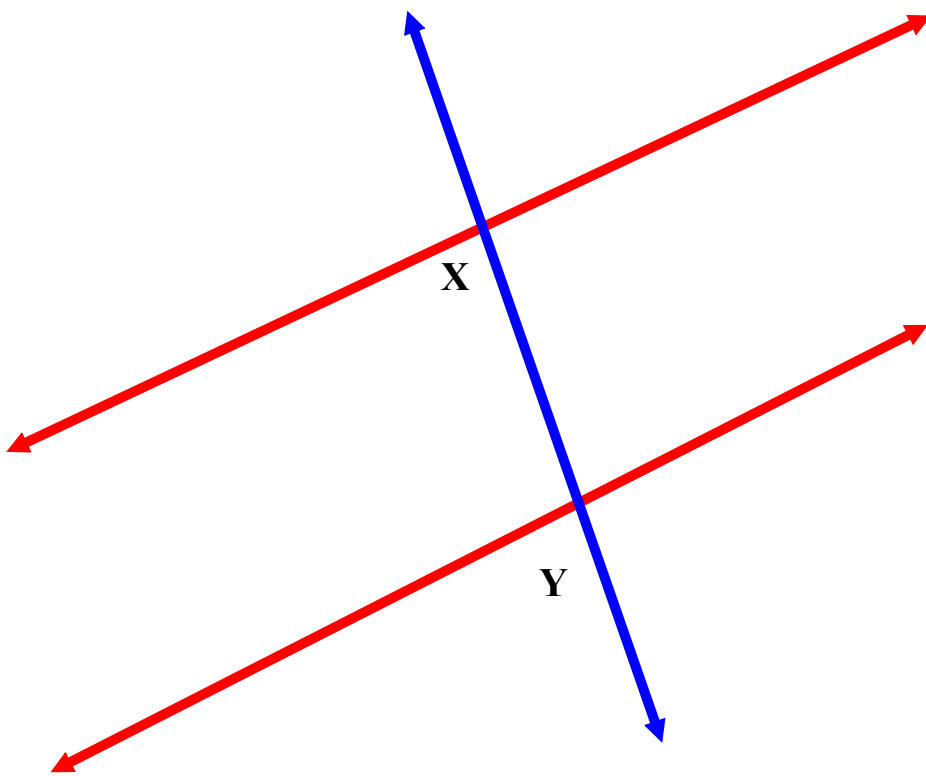


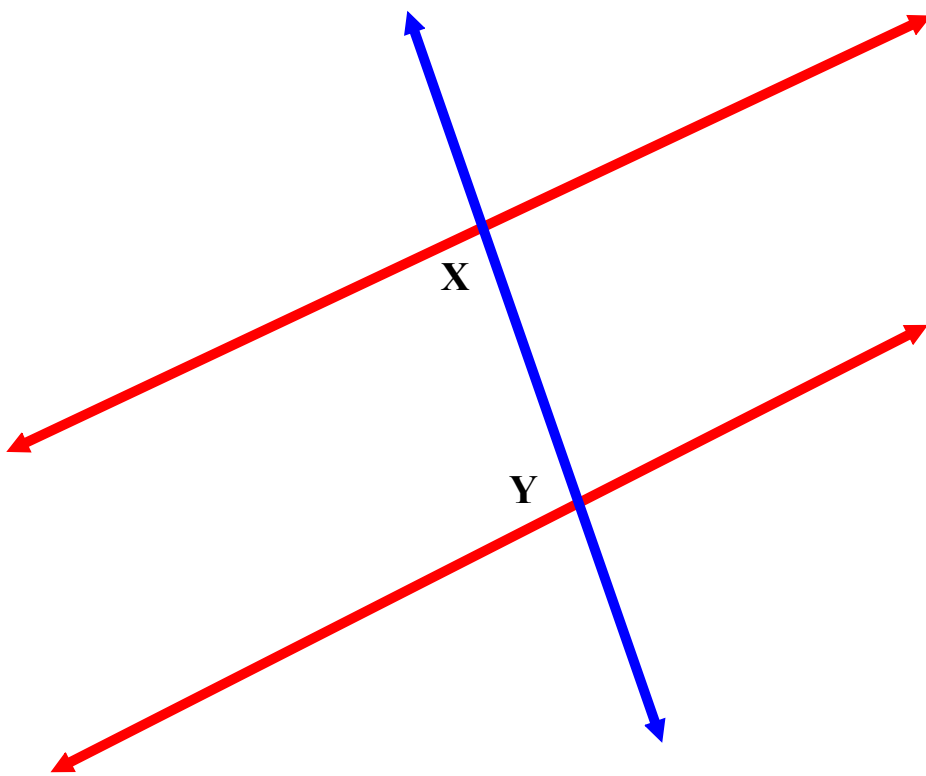


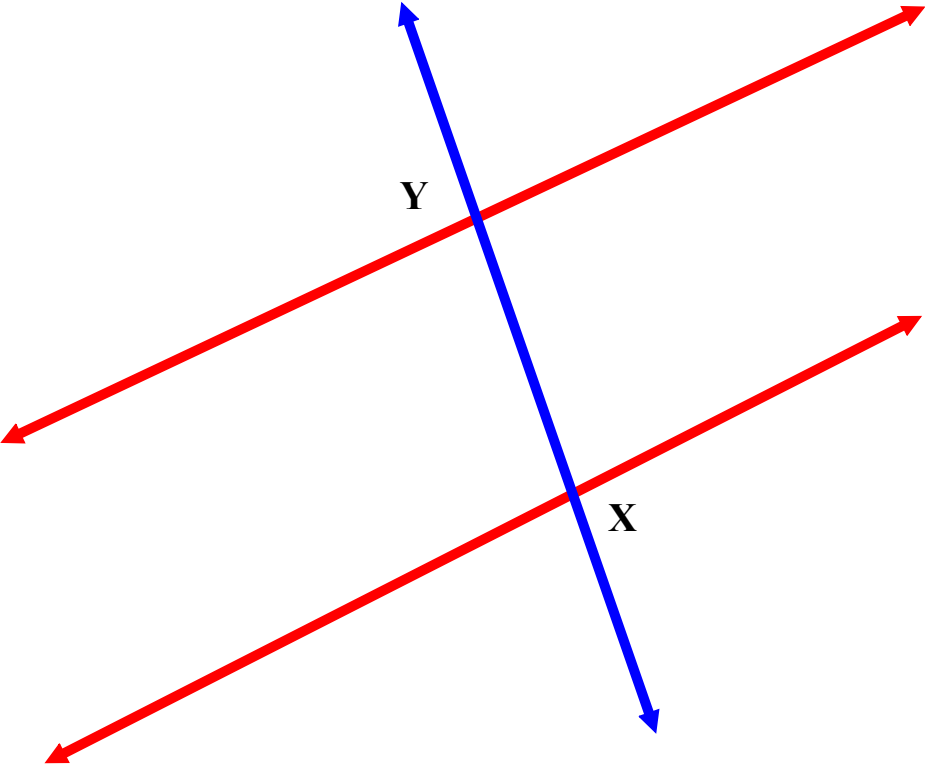


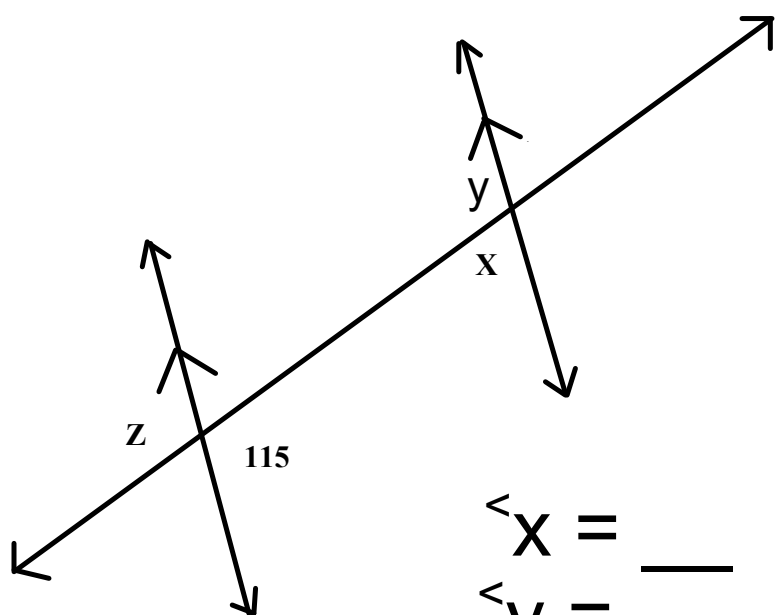






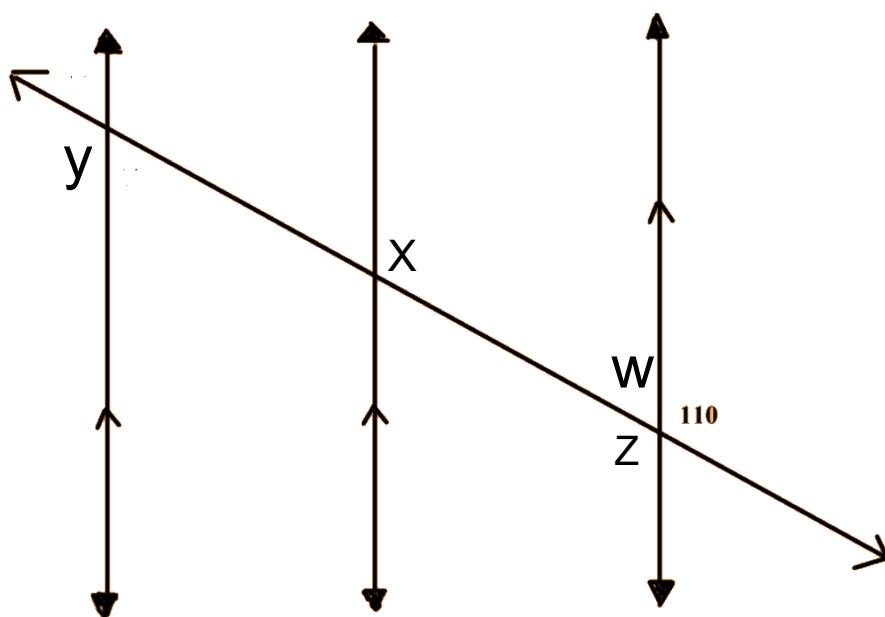






$$\begin{aligned} \angle x &= \underline{\hspace{1cm}} \quad \underline{\hspace{1cm}} \\ \angle y &= \underline{\hspace{1cm}} \quad \underline{\hspace{1cm}} \\ \angle z &= \underline{\hspace{1cm}} \quad \underline{\hspace{1cm}} \end{aligned}$$

Using 115° as your reference, determine the value of each unknown angle, and give the reason.



$w = \underline{\hspace{2cm}}$ $x = \underline{\hspace{2cm}}$

$y = \underline{\hspace{2cm}}$ $z = \underline{\hspace{2cm}}$

