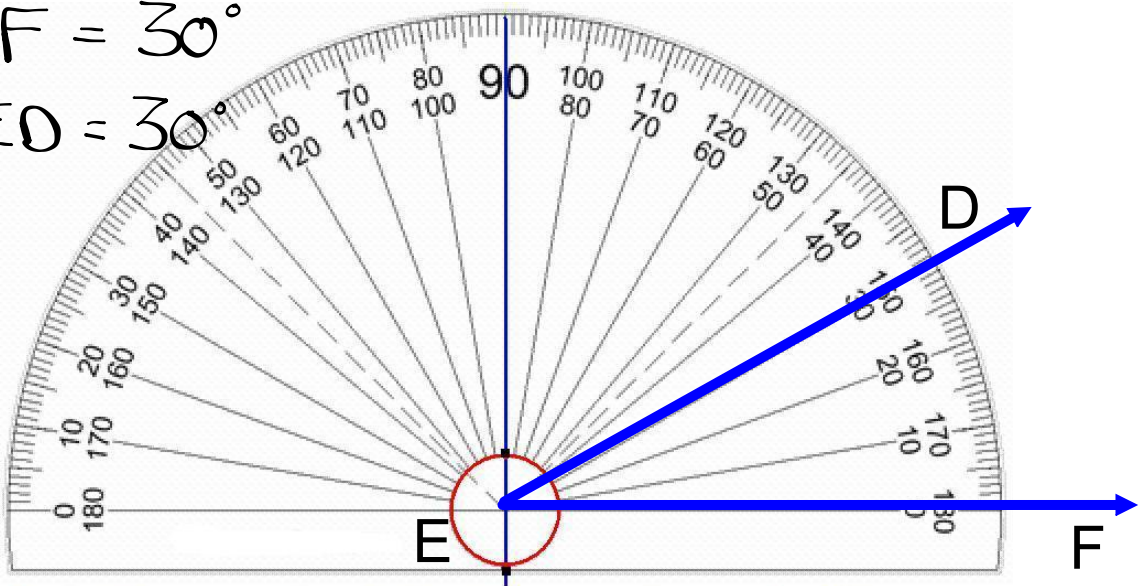


Obtuse Angle \rightarrow greater than 90°

:

$$\angle DEF = 30^\circ$$

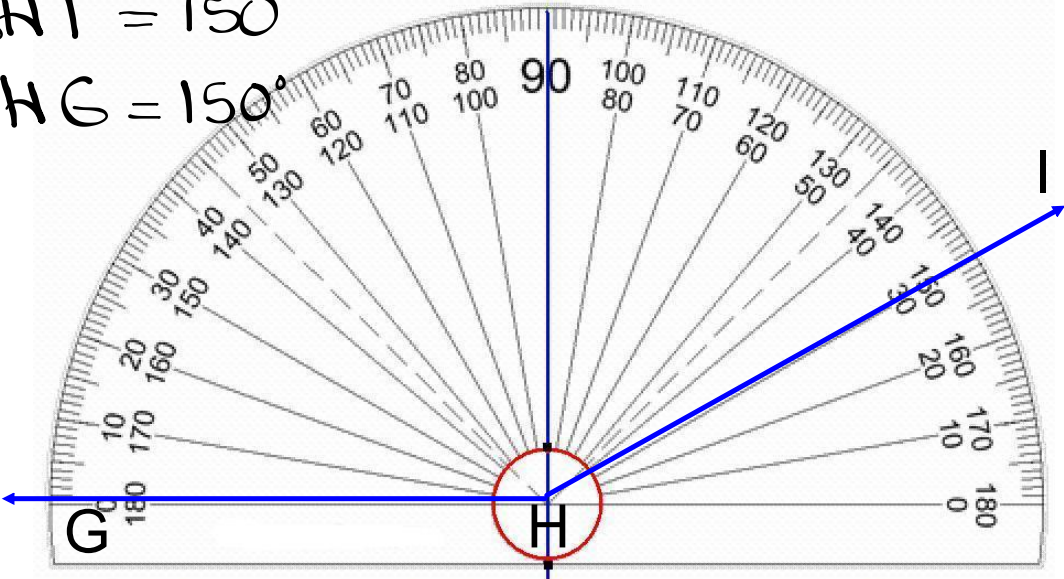
$$\angle FED = 30^\circ$$



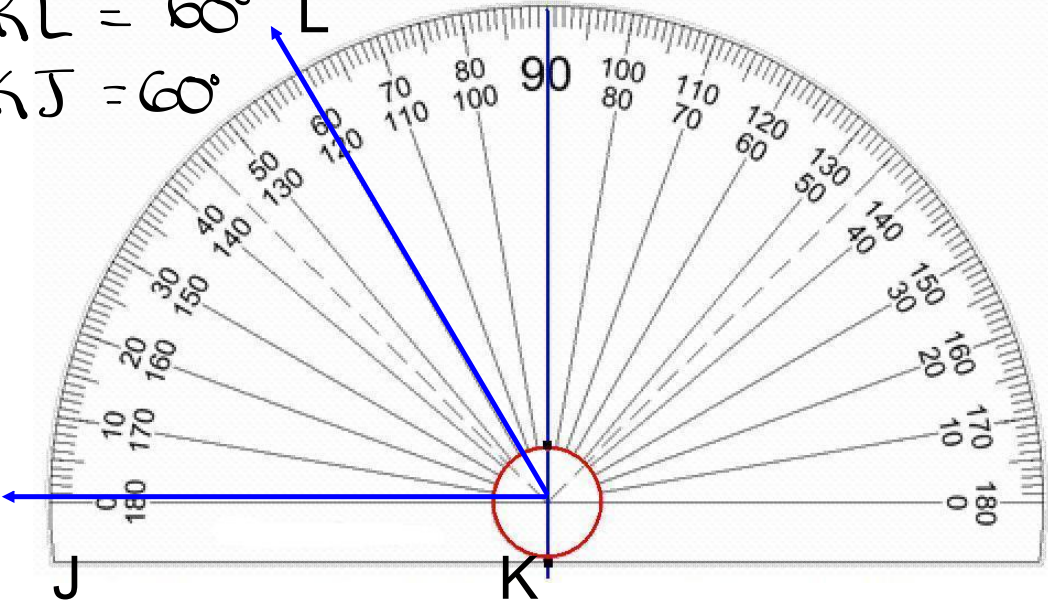
Acute Angle \rightarrow Less than 90°

$\angle GHI = 150^\circ$

$\angle IHG = 150^\circ$

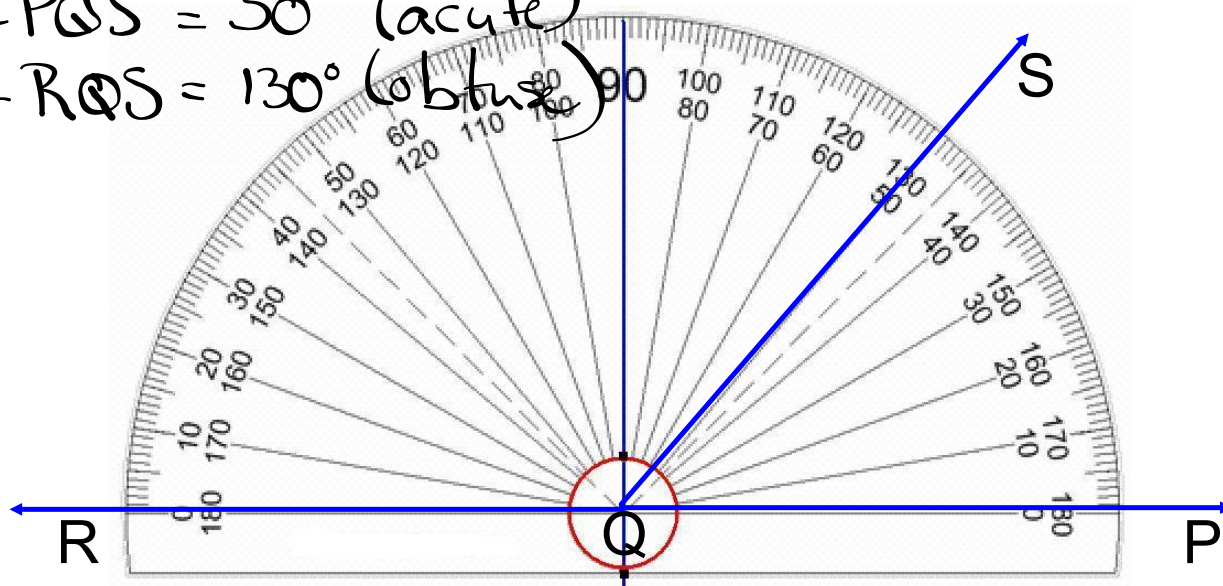


$\angle JKL = 60^\circ$ L
 $\angle LKJ = 60^\circ$

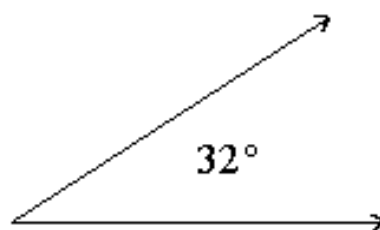
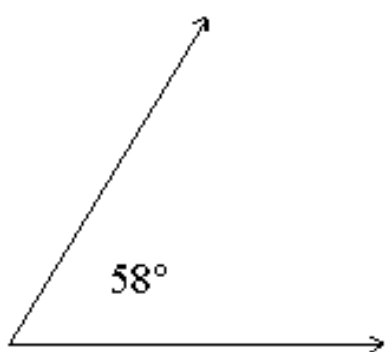


$\angle PQS = 50^\circ$ (acute)

$\angle RQS = 130^\circ$ (obtuse)

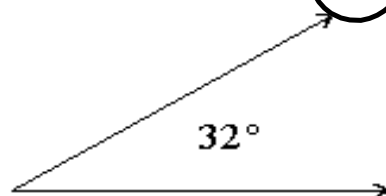
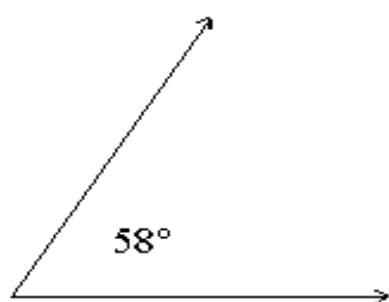


These two angles are complementary.



Why?

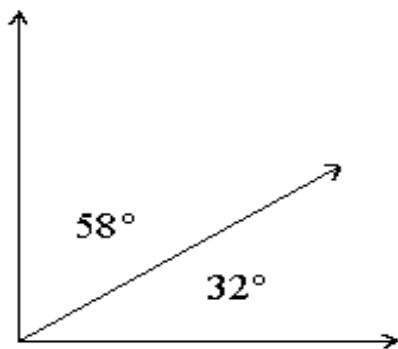
These two angles are complementary.



I wonder if anyone likes my hair?



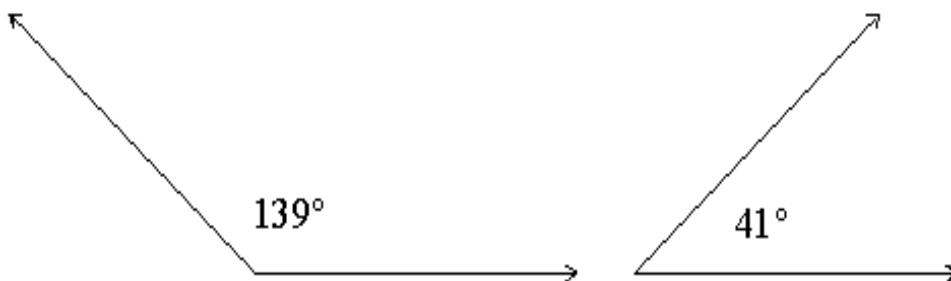
Note that these two angles can be "pasted" together to form a right angle!



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

* Complementary angles add up to 90° .

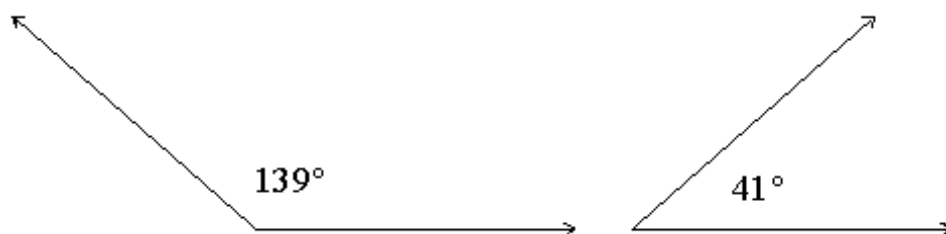
These two angles are supplementary.



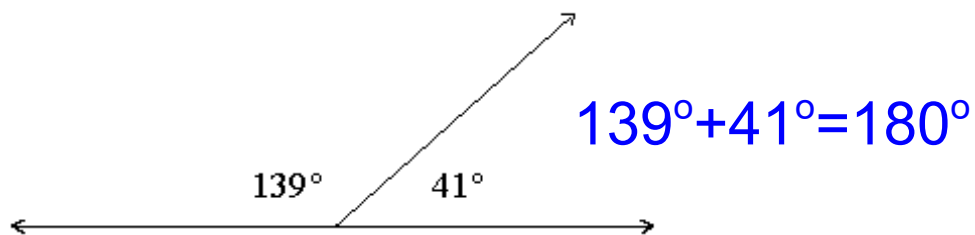
Why?



These two angles are supplementary.



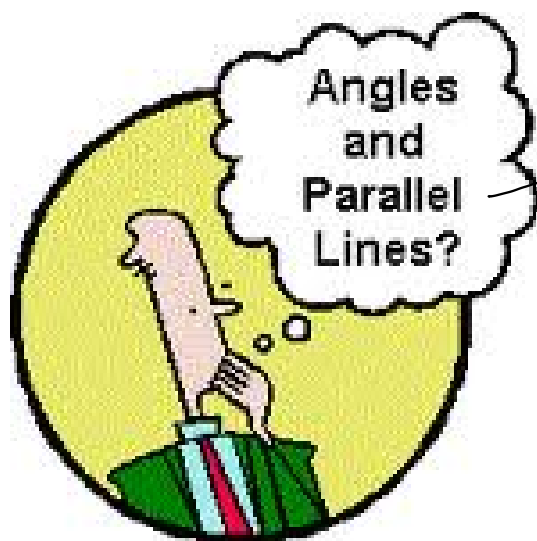
Note that these two angles can be "pasted" together to form a straight line!



* Supplementary angles add up to 180° .

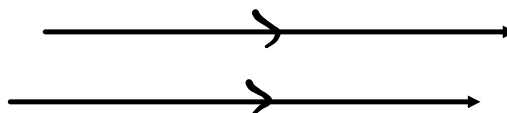
Review

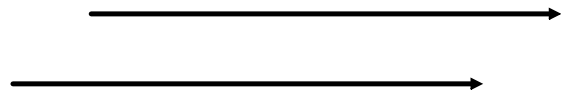
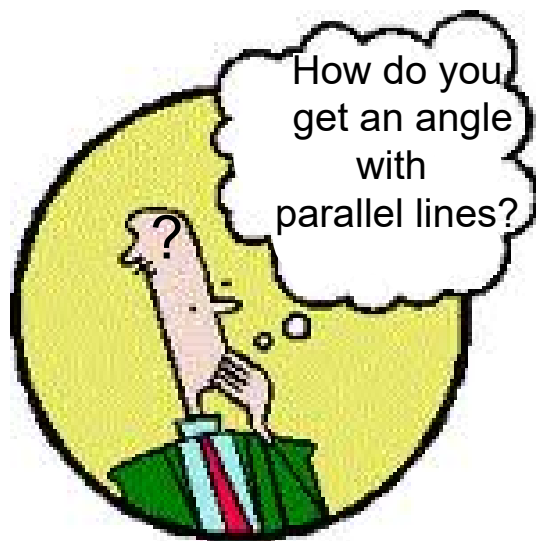
- ① What is the supplement of 100° ? 80°
- ② What is the complement of 30° ? 60°



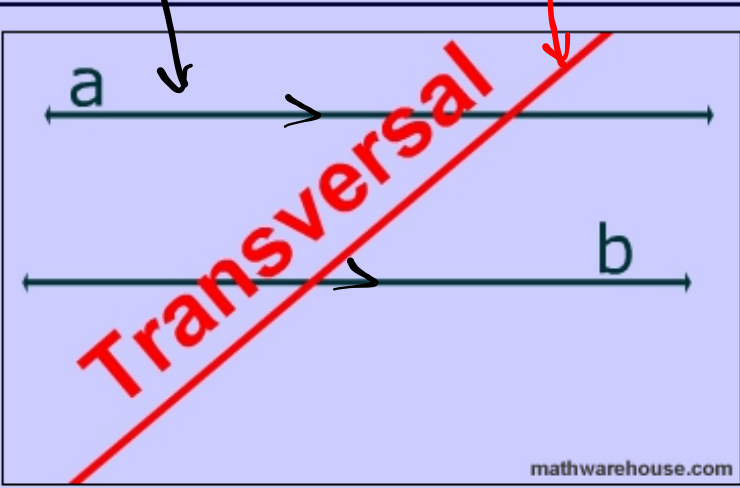
Angles
and
Parallel
Lines?

- Never intersect or meet
- Same slope





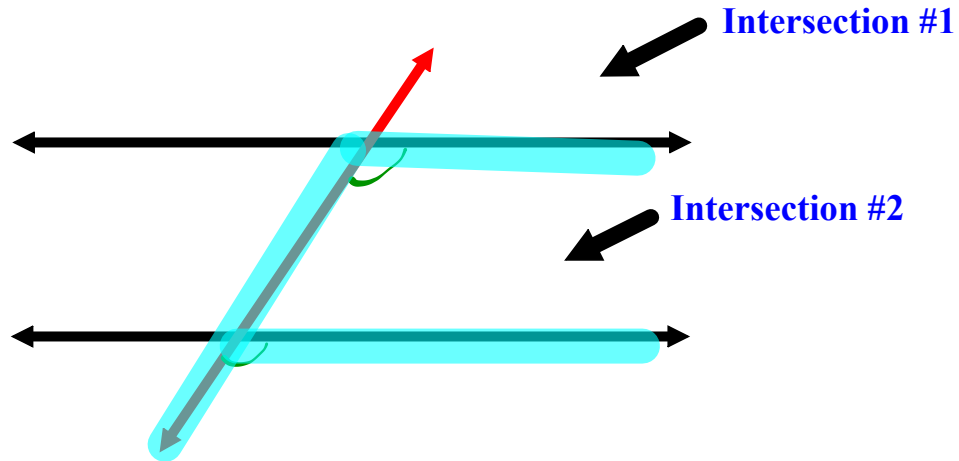
parallel



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} .

mathwarehouse.com

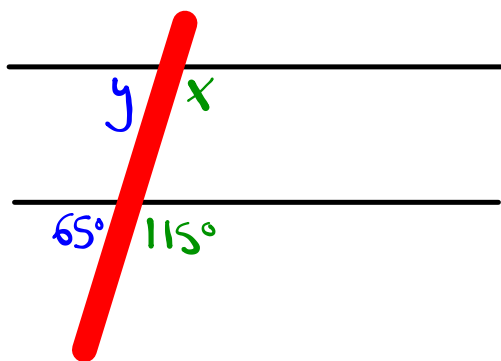
Corresponding Angles (F Rule)



thinking

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

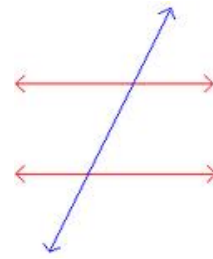
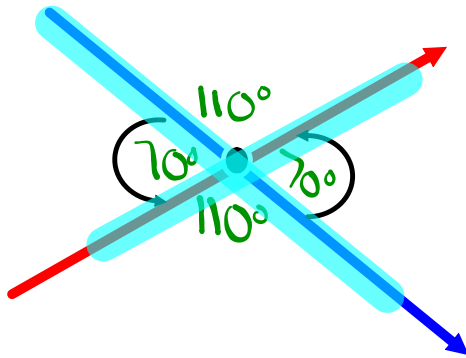
Corresponding angles are equal



$x = 115^\circ$
corresponding
angles.

$y = 65^\circ$
corresponding
angles

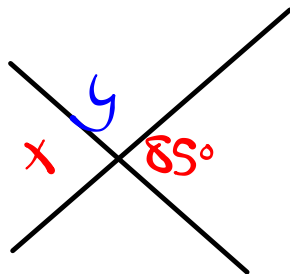
Vertically Opposite Angles (X Rule)



Only share a vertex!
thinking



Vertically opposite
angles
are equal.



$$x = 85^\circ$$

vertically opposite
angles

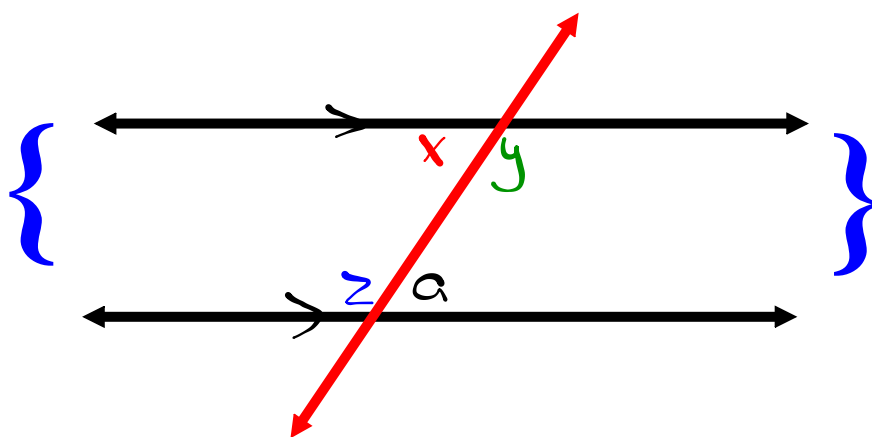
$$y + 85^\circ = 180^\circ$$

$$y = 180^\circ - 85^\circ$$

$$y = 95^\circ$$

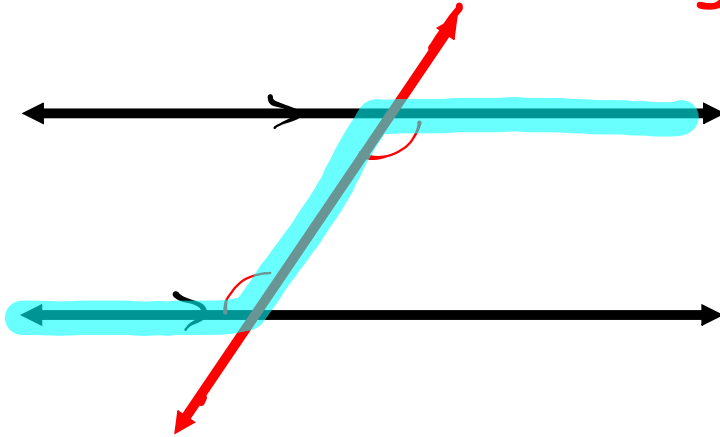
supplementary
angles

Interior Angles



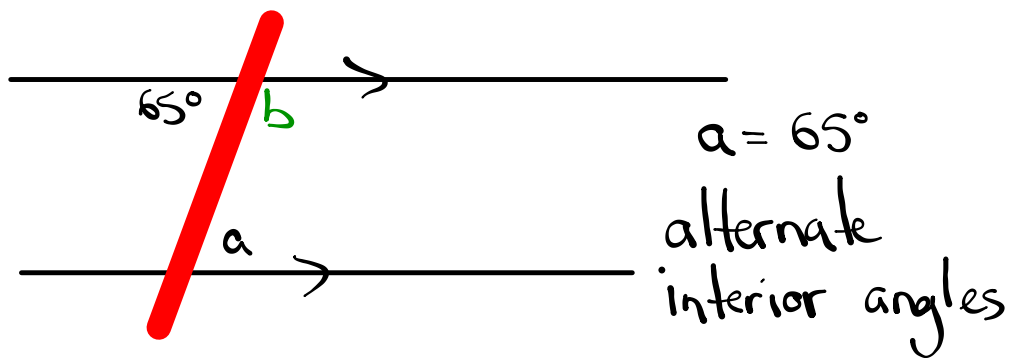
Angles between
two main lines are
Interior Angles

Alternate Interior Angles (Z Rule)



thinking

Alternate Interior
angles
are equal.



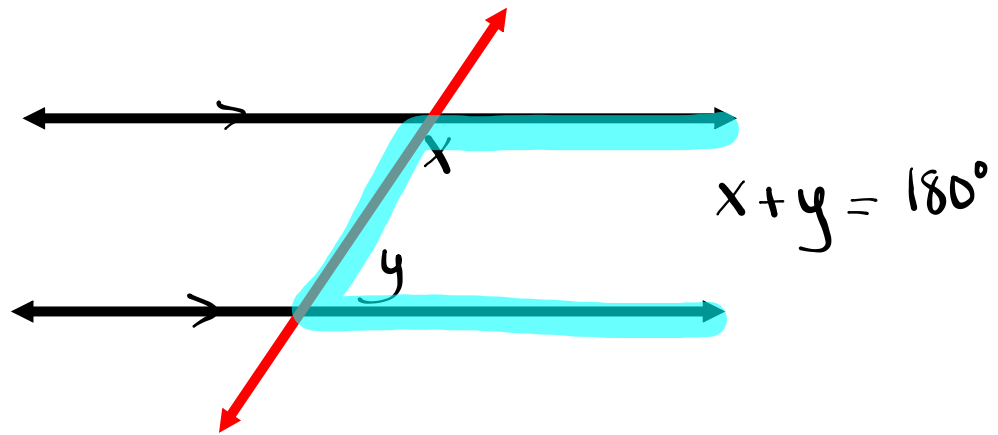
$$b + 65^\circ = 180^\circ$$


$$b = 180^\circ - 65^\circ$$

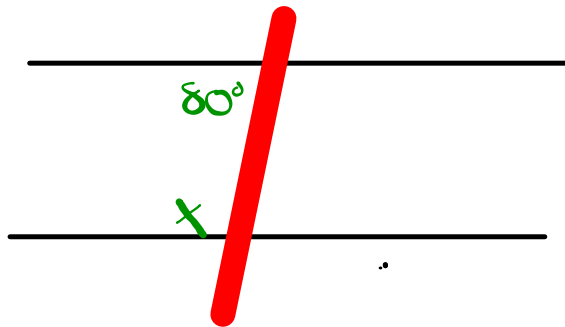
$$b = 115^\circ$$

supplementary angles.

Co-Interior Angles - Same Side (C Rule)

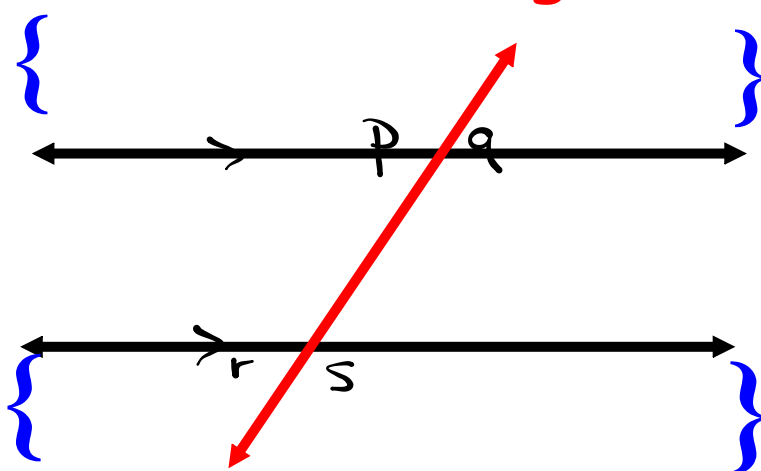


<p>thinking</p> 	<p>C - Interior angles (same side) add to 180°.</p>
---	---



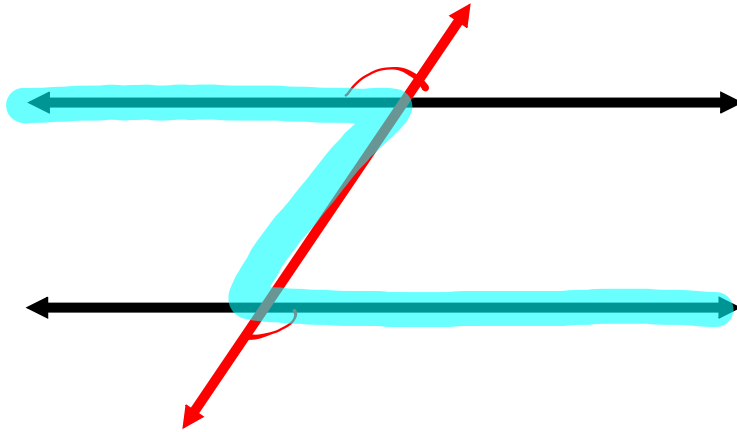
$x + 80^\circ = 180^\circ$
 $x = 180^\circ - 80^\circ$
 $x = 100^\circ$
 Co-Interior angles

Exterior Angles



Angles outside the
two main lines are
Exterior Angles

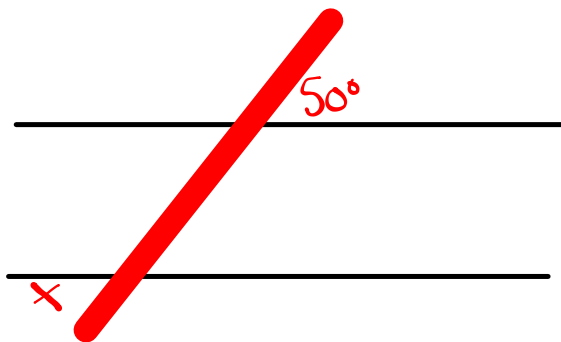
Alternate Exterior Angles (Z Rule)



thinking

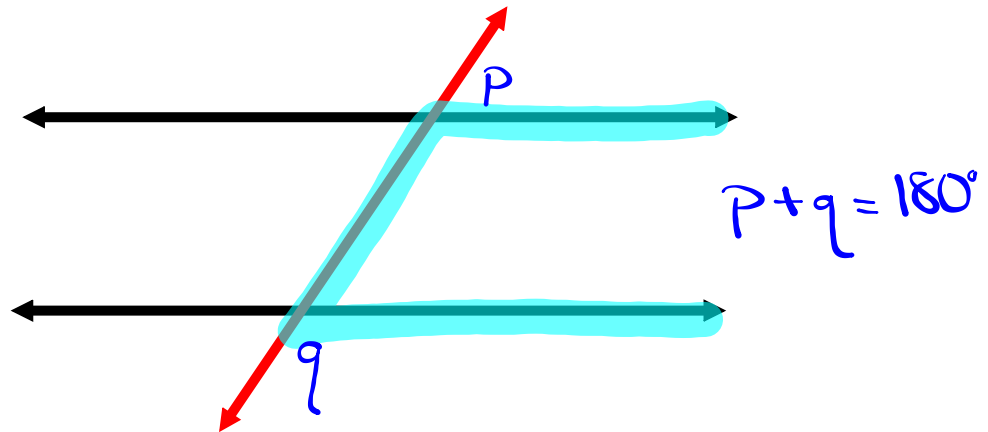


Alternate Exterior
angles
are equal.



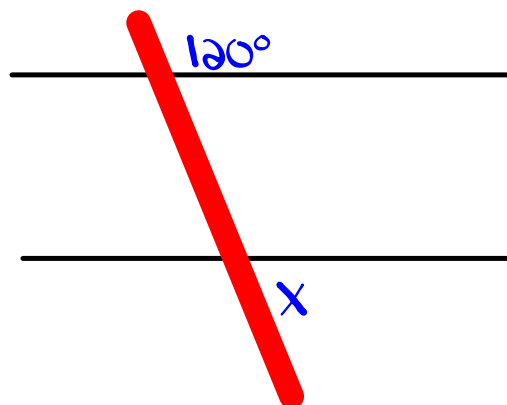
$x = 50^\circ$
alternate
exterior
angles.

Co-Exterior Angles - Same Side (C Rule)



thinking

C-Exterior
angles
(same side)
add to 180° .



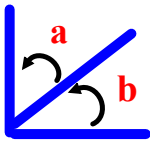
$$x + 120^\circ = 180^\circ$$

$$x = 180^\circ - 120^\circ$$

$$x = 60^\circ$$

Co-Exterior
angles.

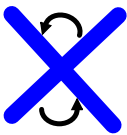
Let's Sum It Up



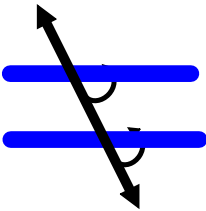
Rule - Complimentary angles a & b add up to 90°



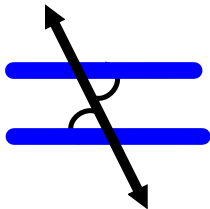
Rule - Supplementary angles a & b add up to 180°



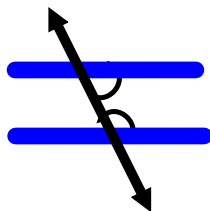
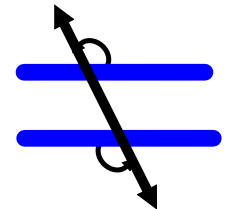
Rule - Vertically Opposite angles are equal



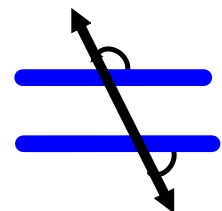
Rule - Corresponding angles are equal

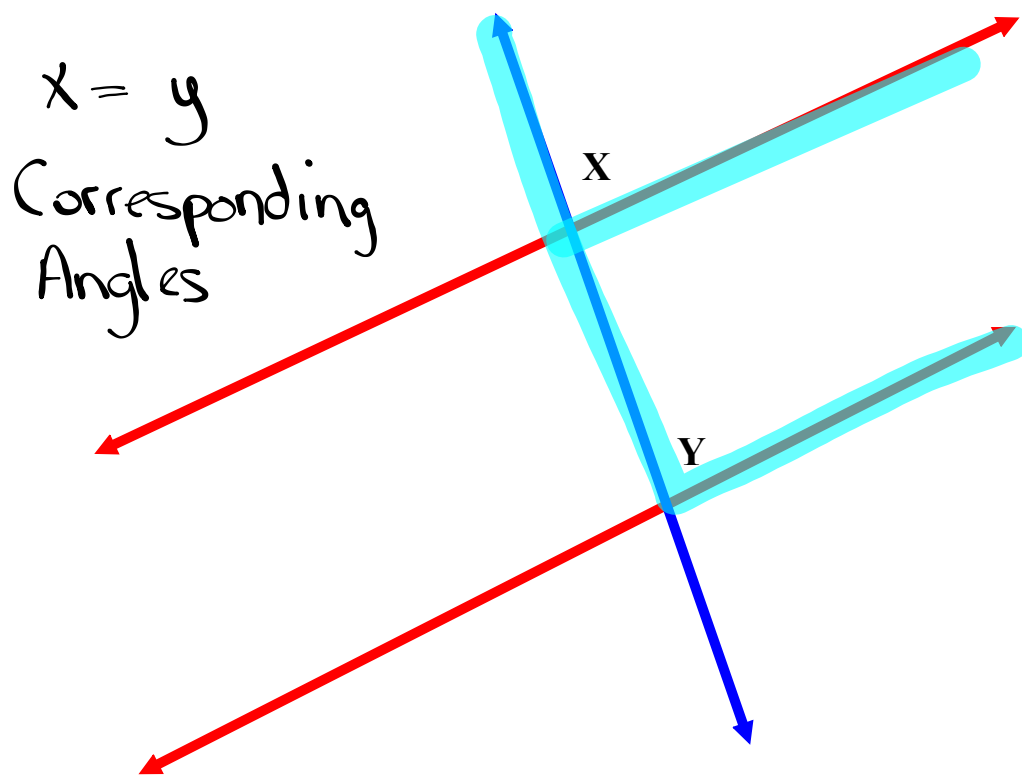


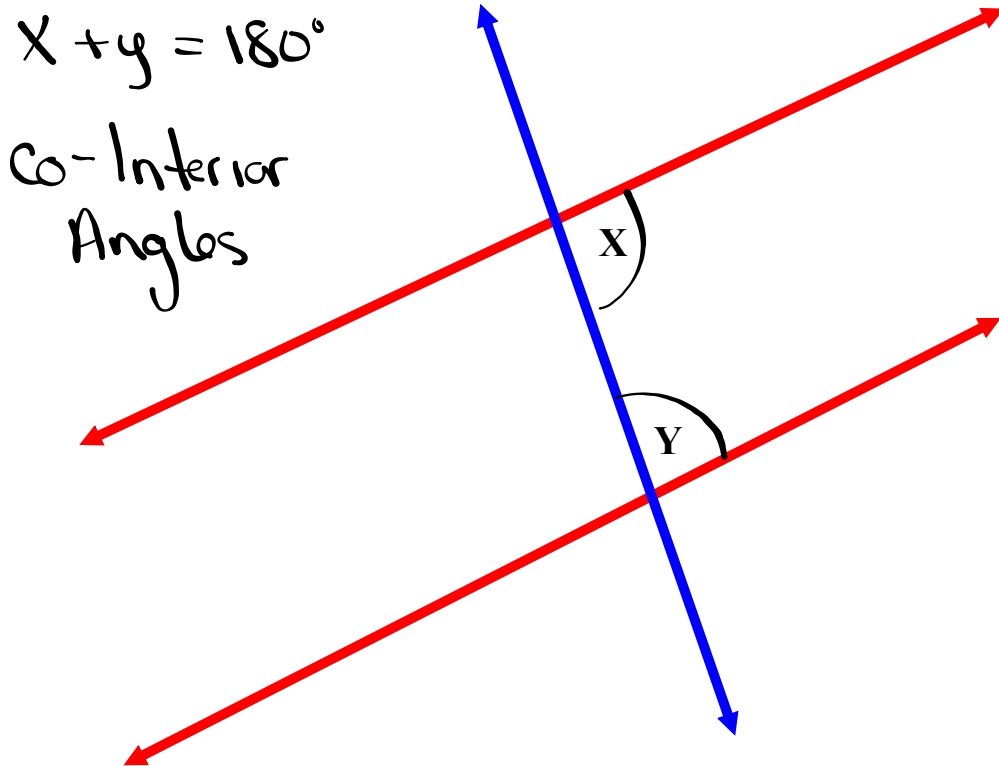
**Rule - Alternate Interior angles are equal
Alternate Exterior angles are equal**

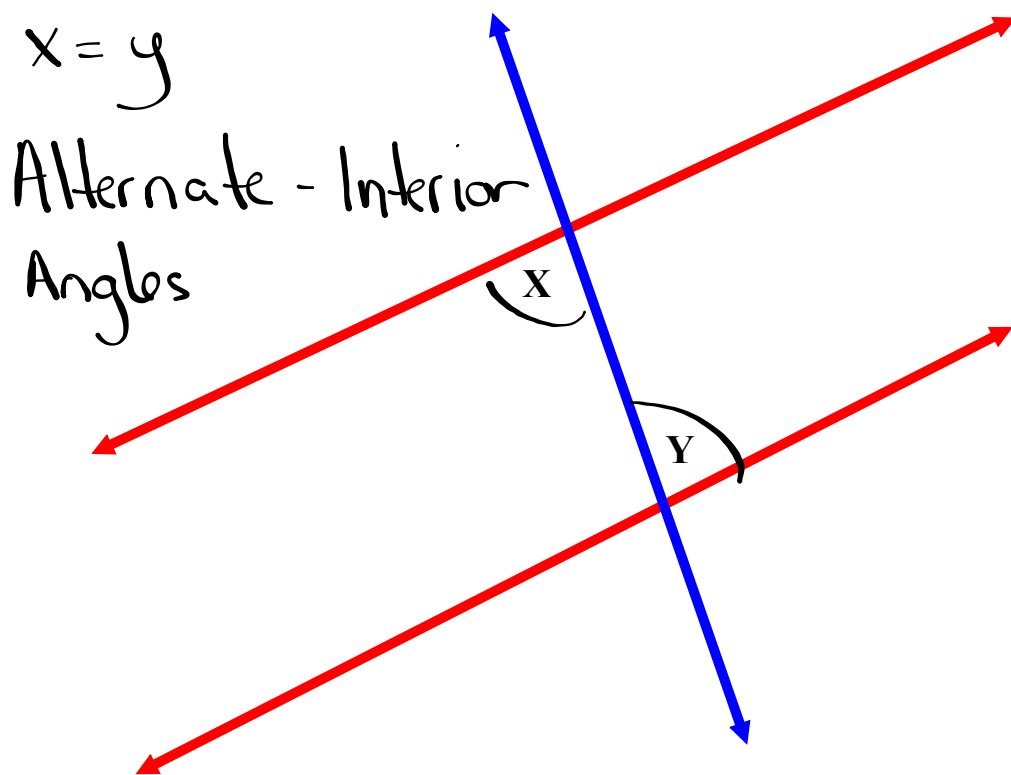


**Rule - Co-interior angles add up to 180°
Co-Exterior angles add up to 180°**

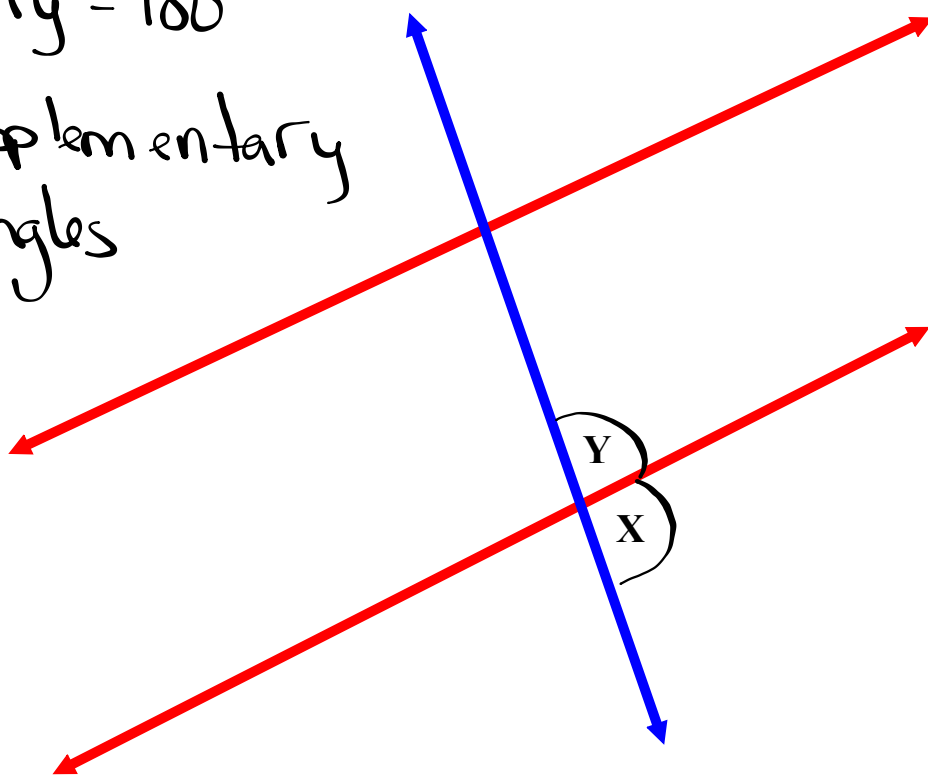


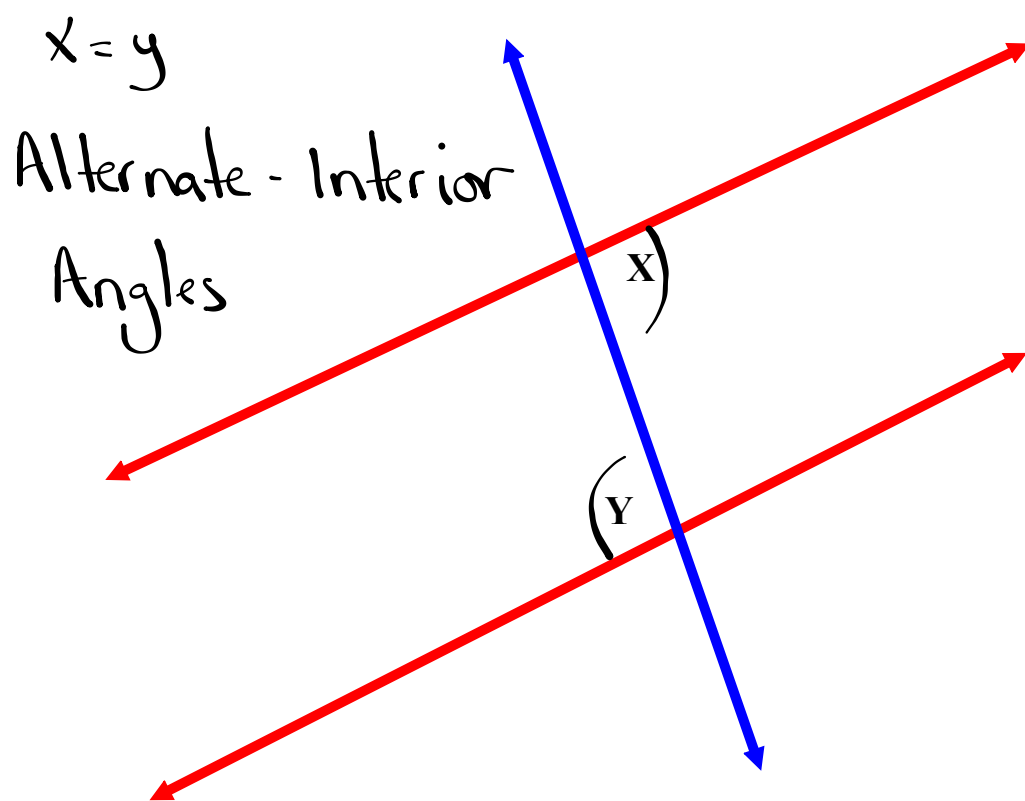




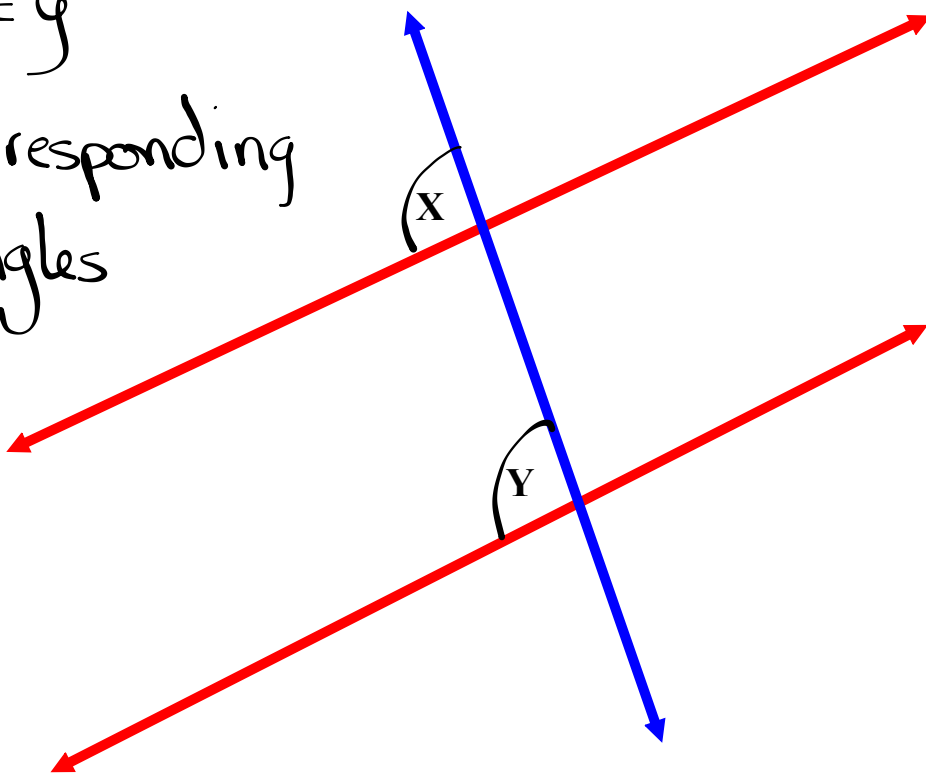


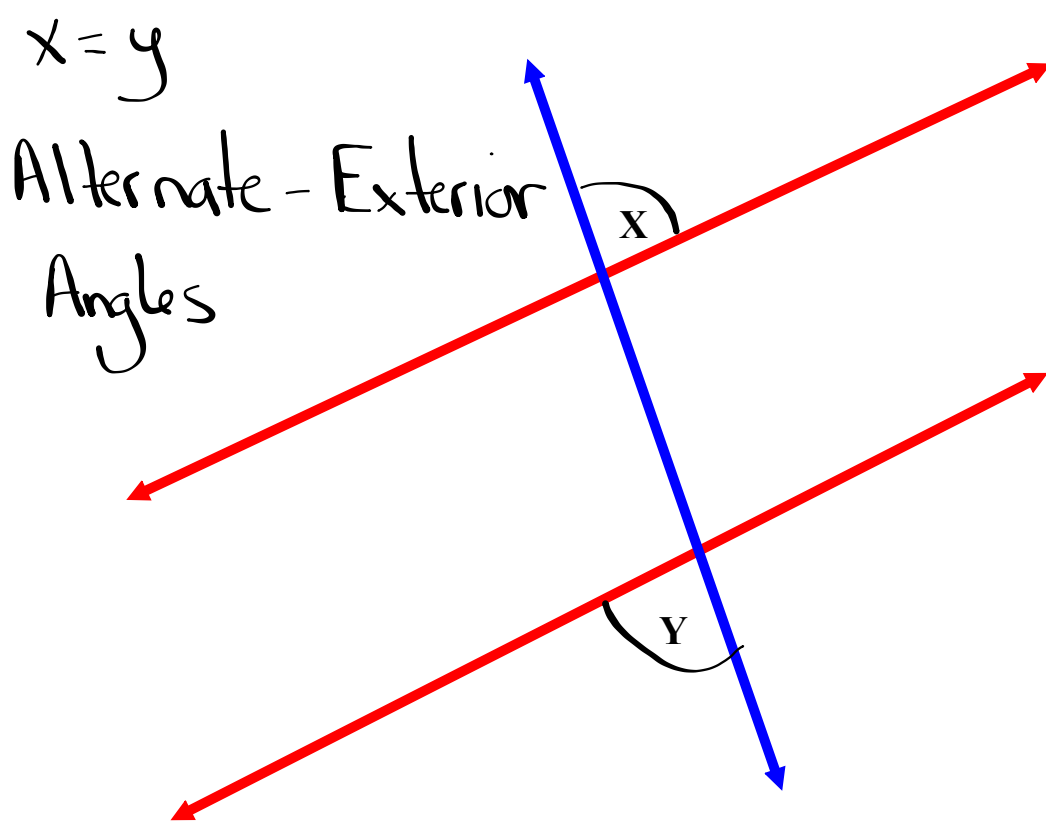
$x + y = 180^\circ$
Supplementary
Angles



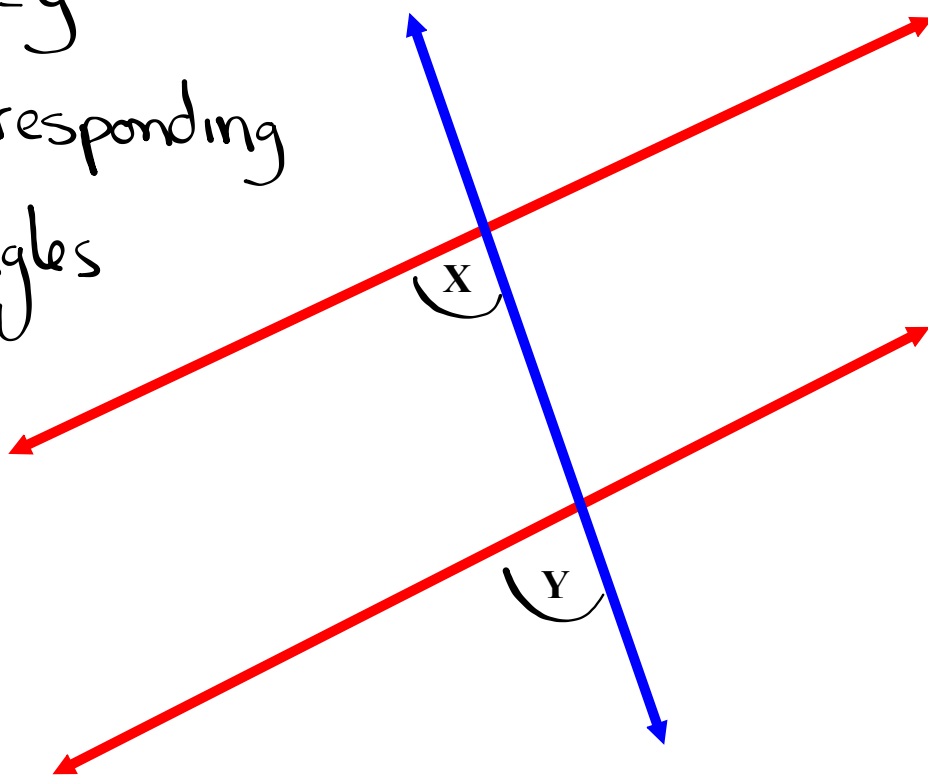


$x = y$
Corresponding
Angles

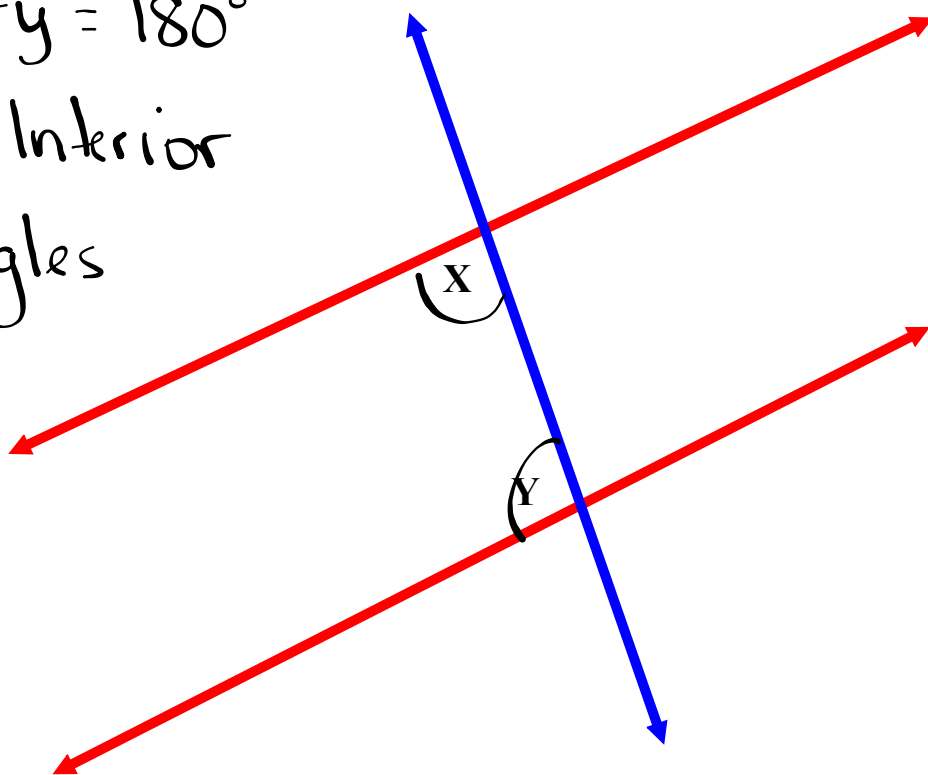


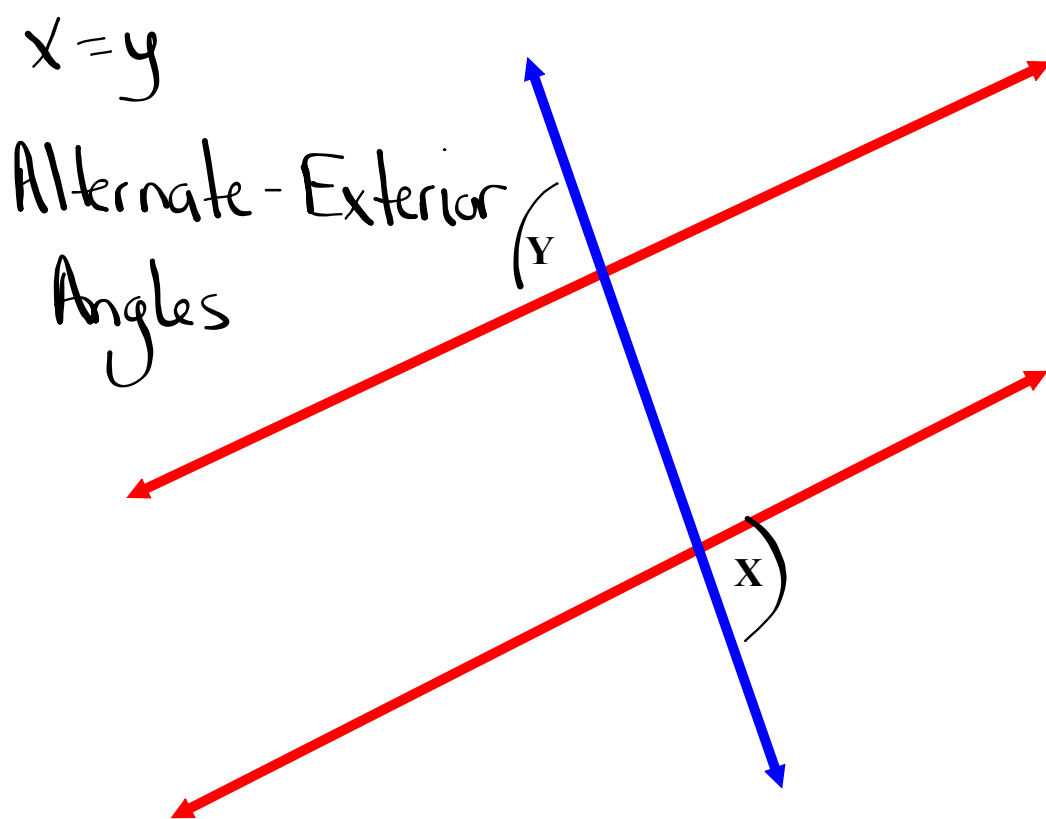


$x = y$
Corresponding
Angles

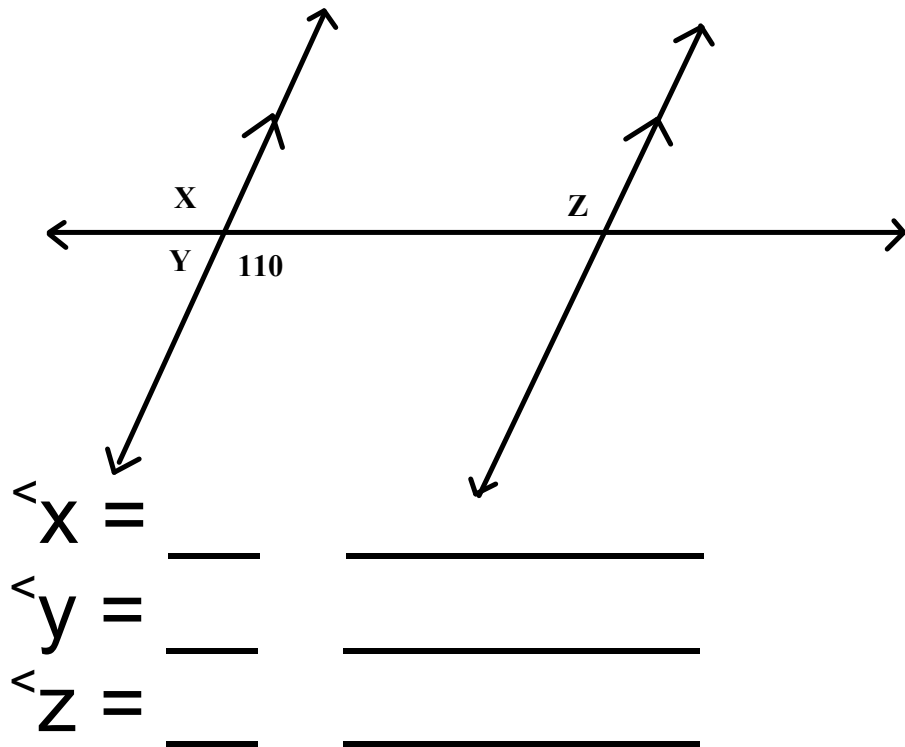


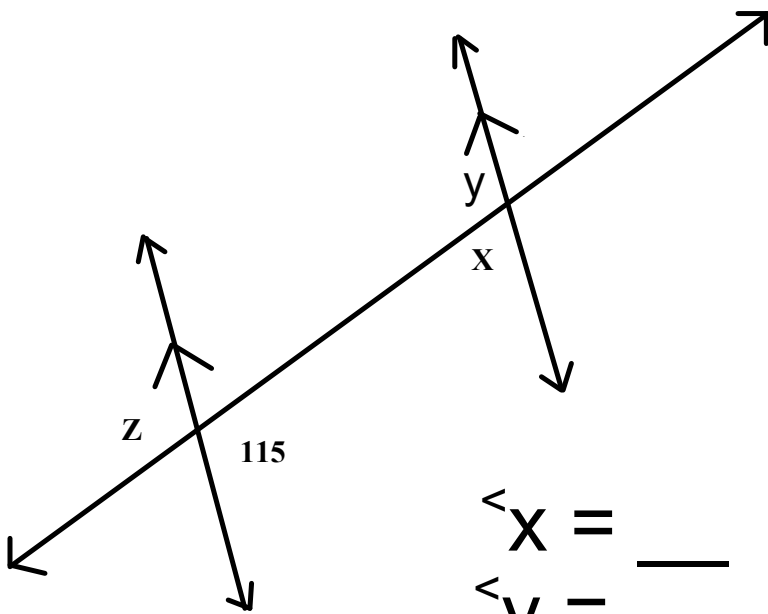
$x + y = 180^\circ$
Co-Interior
Angles





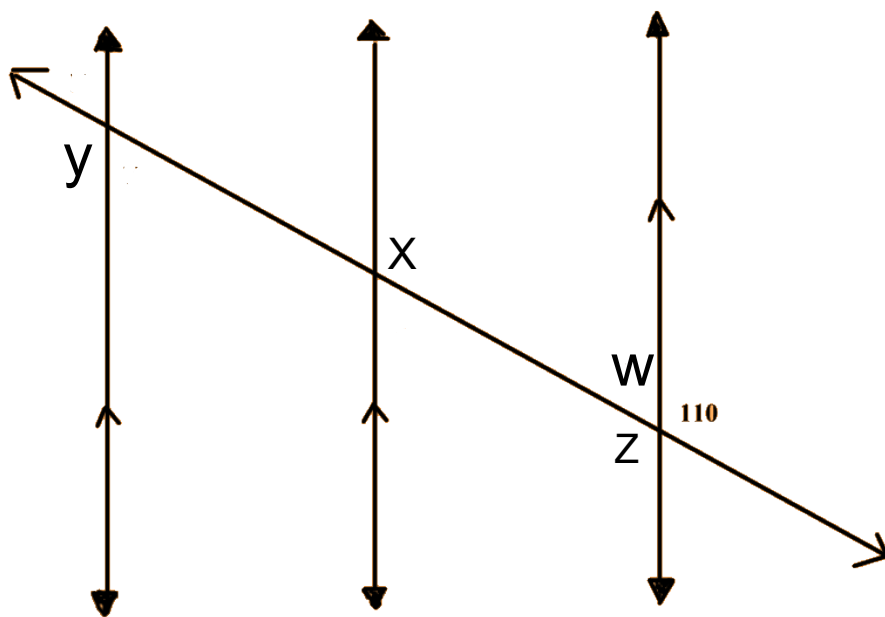
Using 110° as your reference, determine the value of each unknown angle, and give the reason.





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

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



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

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