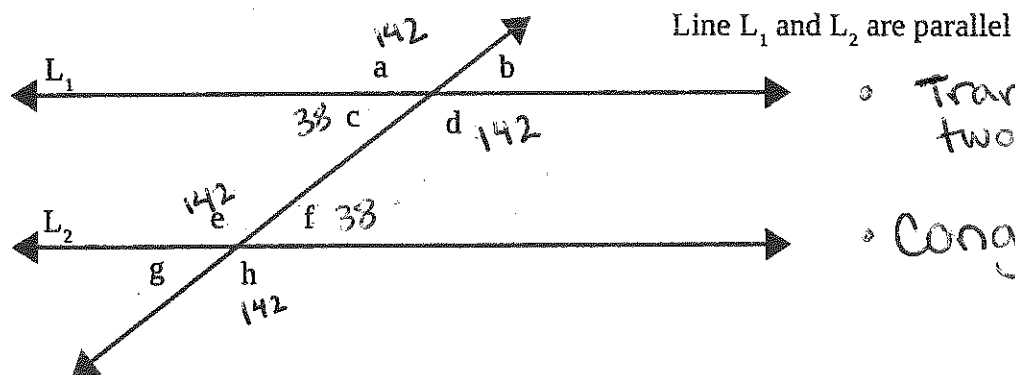


Parallel Lines and Transversals

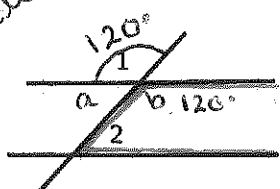
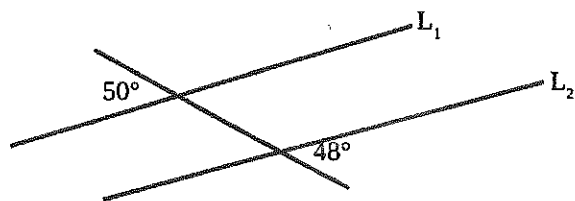
Line L_1 and L_2 are parallel

- Transversal crosses two or more lines.

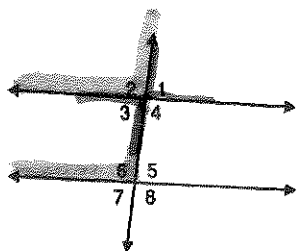
- Congruent = Same / Equal

Name a pair of...	Measure them	Rule
Vertically Opposite Angles $\times$ $\angle e, \angle h$	$\angle e = 142^\circ$ $\angle h = 142^\circ$	Vertically Opposite Angles are Congruent
Alternate Interior Angles Z $\angle c, \angle f$	$\angle c = 38^\circ$ $\angle f = 38^\circ$	Alternate interior $\angle$'s are congruent (Parallel)
Alternate Exterior Angles Z $\angle a, \angle h$	$\angle a = 142^\circ$ $\angle h = 142^\circ$	Alternate exterior $\angle$'s are congruent (Parallel)
Corresponding Angles F $\angle g, \angle c$	$\angle g = 38^\circ$ $\angle c = 38^\circ$	Corresponding $\angle$'s are congruent (Parallel)
Interior angles on the same side of the transversal C $\angle d, \angle f$	$\angle d = 142^\circ$ $\angle f = 38^\circ$ } 180°	Int. $\angle$'s on same side of transversal are supplementary (Parallel)
Exterior angles on the same side of the transversal C $\angle a, \angle g$	$\angle a = 142^\circ$ $\angle g = 38^\circ$ } 180°	Ext $\angle$'s on same side of transversal are supplementary (Parallel)

These rules apply for PARALLEL LINES only

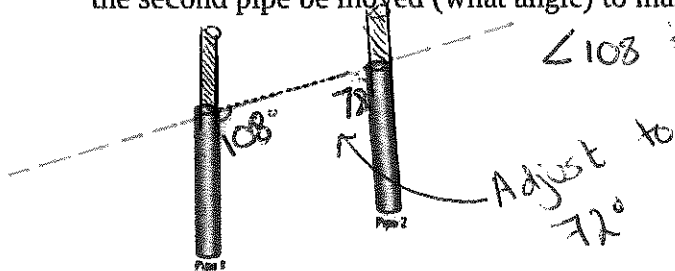
If angle 1 is 120° what is the measure of angle 2? Explain how you know. $\angle 1 \hat{=} \angle b$ are opposite $\angle b = 120^\circ$ $\angle b \hat{=} \angle 2$ are supplementary $\angle 2 = 60^\circ$ Are L_1 and L_2 parallel? Explain how you know.No, $\angle 50^\circ \hat{=} \angle 48^\circ$ are alternate exterior angles must be congruent when lines are parallel.

In the diagram below, the two lines crossing the transversal are parallel. State the relationship between the pairs of angles and the relationship of their angle measurements.



$\angle 1$ & $\angle 3$ Congruent, $X =$ Vertically Opposite
 $\angle 2$ & $\angle 6$ Congruent, $F =$ Corresponding
 $\angle 3$ & $\angle 5$ Congruent, $Z =$ Alternate Interior

The diagram below shows two pipes that are vertical but not yet parallel to each other. How much must the second pipe be moved (what angle) to make them parallel? Show your calculations.

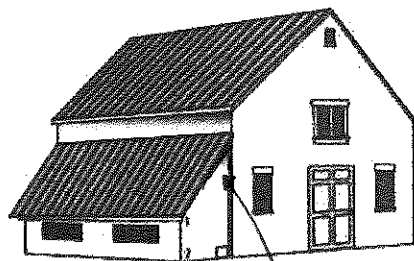


$\angle 108 \div \angle 72$ interior angles on same side as transversal.

$\hookrightarrow$ Supplementary when poles are parallel.

$$180 - 108 = 72^\circ$$

In the diagram below, the side of the house and the side of the attached shed are parallel. What are the measures of $\angle 1$ and $\angle 2$?

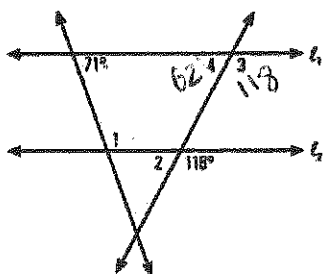


$$\angle 1 = 122^\circ \quad (180 - 58 = 122)$$

$$\angle 2 = 90^\circ$$

In the diagram below, the two lines, l_1 and l_2 are parallel. What are the measures of the three angles indicated? Explain your answers.

four



$\angle 1$ $109^\circ \rightarrow$ Supplementary $\angle 3$ $118^\circ \rightarrow$ Corresponding
 $\angle 2$ $62^\circ \rightarrow$ Corresponding $\angle 4$ $62^\circ \rightarrow$ Supplementary

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