

Name: Key

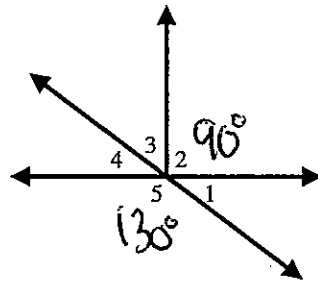
Class: _____

M8-U2: Notes #2 - Parallel Line Geometry

Date: _____

Warm-Up:

The $m\angle 2 = 90^\circ$. Find the measure of the remaining angles if $m\angle 5 = 130^\circ$.



$$m\angle 1 = \underline{50^\circ}$$

$$m\angle 2 = \underline{90^\circ}$$

$$m\angle 3 = \underline{40^\circ}$$

$$m\angle 4 = \underline{50^\circ}$$

Tell how you know their measures without the use of a protractor.

$\angle 1$ is 50° b/c it is suppl. to $\angle 5$

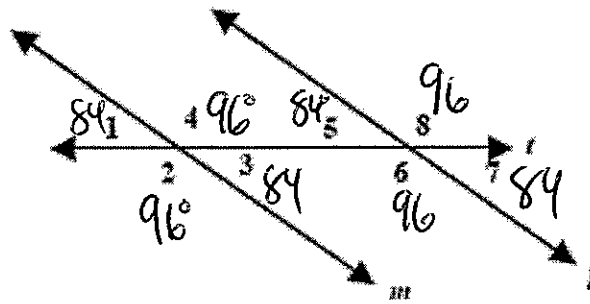
$\angle 2$ is 90° given

$\angle 4$ is 50° b/c it is vertical to $\angle 1$ \therefore same measure

$\angle 3$ is 40° b/c it is complementary to $\angle 4$.

Example 1:

In the following diagram $m \parallel l$ cut by transversal t , find the remaining angles if $m\angle 4 = 96^\circ$ and $m\angle 5 = 84^\circ$.

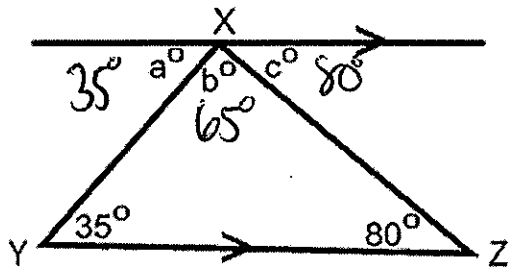


Angle	Measure	Reason
$\angle 1$	84°	Supplementary to $\angle 4$
$\angle 2$	96°	vertical to $\angle 4$ or supplementary to $\angle 1$
$\angle 3$	84°	suppl. to $\angle 2$
$\angle 6$	96°	suppl. to $\angle 5$
$\angle 7$	84°	vertical to $\angle 5$
$\angle 8$	96°	vertical to $\angle 6$

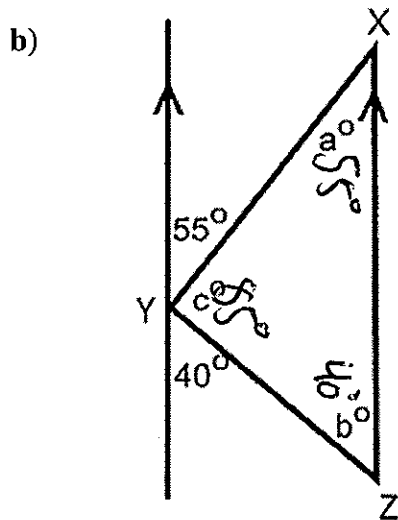
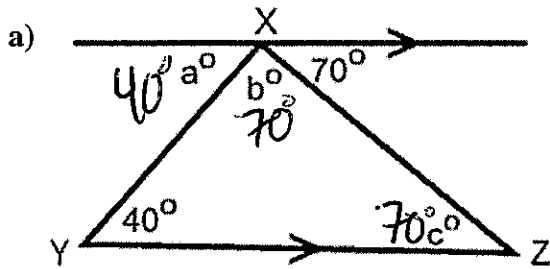
What other relationships do you see?

Angle Pairs	Reason	Other Angle Pairs that satisfies the given relationship
$\angle 5 \cong \angle 3$	alternate interior \angle s	$\angle 4 \cong \angle 6$
$\angle 1 \cong \angle 5$	corresponding \angle s	$\angle 4 \cong \angle 8$ $\angle 3 \cong \angle 7$ $\angle 2 \cong \angle 6$
$\angle 1 \cong \angle 7$	alternate exterior \angle s	$\angle 2 \cong \angle 8$

Example 2: Missing angles in parallel line geometry

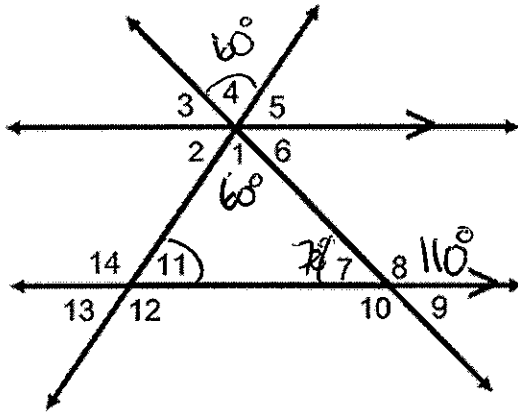


Try It!: Find the missing angle measures.



Example 3: Missing angles in parallel line geometry

If the $m\angle 1 = 60^\circ$ and $m\angle 8 = 110^\circ$ find $m\angle 11$, $m\angle 4$, & $m\angle 7$.

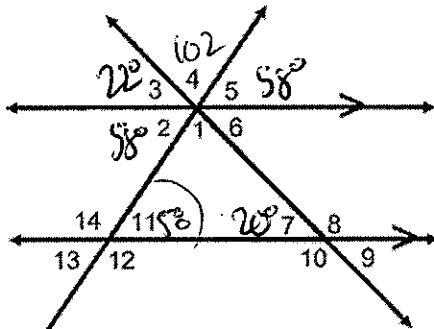


$m\angle 7 = 70^\circ$, supp. to $\angle 8$
 $m\angle 4 = 60^\circ$, vert to $\angle 1$
 $m\angle 11 = 50^\circ$, ext. angle: $110 - 60 = 50$

Try It!: Find the missing angle measures.

a) If the $m\angle 5 = 58^\circ$ and $m\angle 7 = 20^\circ$ find $m\angle 11$, $m\angle 4$, & $m\angle 3$.

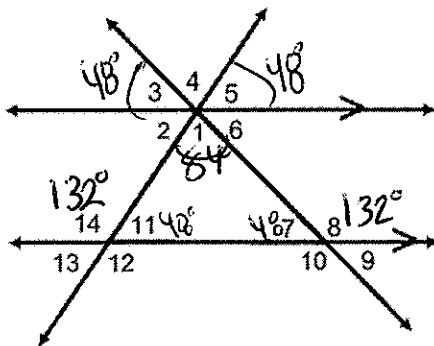
58° 102 22°



$$\begin{array}{r} 180 \\ -78 \\ \hline 102 \end{array}$$

$$\begin{array}{r} 180 \\ -158 \\ \hline 22^\circ \end{array}$$

b) If the $m\angle 14 = 132^\circ$ and $m\angle 8 = 132^\circ$ find $m\angle 1$, $m\angle 3$, & $m\angle 5$.



$$\begin{array}{r} 180 \\ -132 \\ \hline 48^\circ \end{array}$$

$m\angle 1 + m\angle 11 + m\angle 7 = 180$
 $\angle 3$ and $\angle 7$ are corr.
 $\angle 11$ and $\angle 5$ are corr.