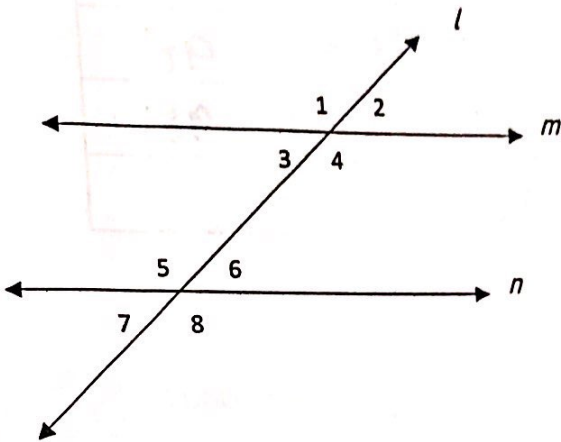


parallel Lines & Transversals

3.2



If two PARALLEL lines are cut by a transversal. Then

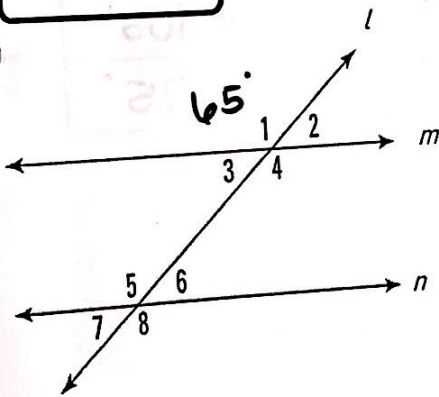
- Each pair of corresponding angles is congruent \cong
- Each pair of alternate interior angles is congruent \cong
- Each pair of alternate exterior angles is congruent \cong
- Each pair of same-side interior angles is supplementary \cong
= 180

And recall from Unit 1, vertical angles are always congruent and a linear pair is always supplementary.

{So if we know one angle measure, then we can find them all} For the following examples 1-2, $m \parallel n$.

Example 1

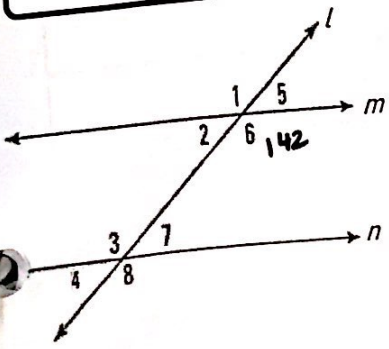
Given $m\angle 1 = 65^\circ$, find the measure of each missing angle. Give your reasoning.



$m\angle 2$	115°	linear pair to $\angle 1$
$m\angle 3$	115°	vertical to $\angle 2$
$m\angle 4$	65°	vertical to $\angle 1$
$m\angle 5$	65°	corresp. to $\angle 1$
$m\angle 6$	115°	alt int $\angle 3$
$m\angle 7$	115°	vertical $\angle 6$
$m\angle 8$	65°	vertical $\angle 5$

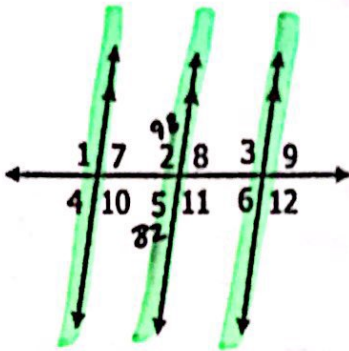
Example 2

Given $m\angle 6 = 142^\circ$, find the measure of each missing angle. Give your reasoning.



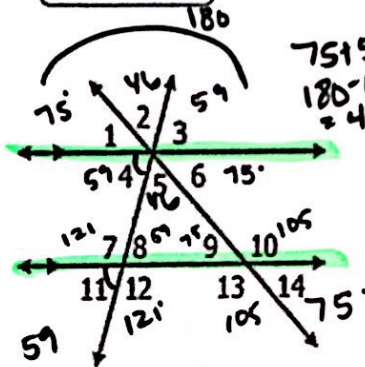
$m\angle 2$	38°	LP (linear pair) to $\angle 6$
$m\angle 3$	142°	vertical $\angle 8$
$m\angle 4$	38°	corresp $\angle 2$
$m\angle 5$	38°	vertical $\angle 2$
$m\angle 1$	142°	vertical to $\angle 6$
$m\angle 7$	38°	vertical $\angle 4$
$m\angle 8$	142°	alt. ext $\angle 1$

Example 3 Given $m\angle 5 = 82^\circ$, find the measure of each missing angle.



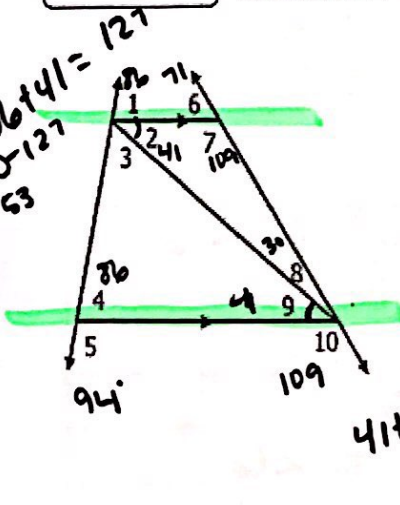
a. $m\angle 1 = 98^\circ$	e. $m\angle 6 = 82^\circ$	i. $m\angle 10 = 98^\circ$
b. $m\angle 2 = 98^\circ$	f. $m\angle 7 = 82^\circ$	j. $m\angle 11 = 98^\circ$
c. $m\angle 3 = 98^\circ$	g. $m\angle 8 = 82^\circ$	k. $m\angle 12 = 98^\circ$
d. $m\angle 4 = 82^\circ$	h. $m\angle 9 = 82^\circ$	

Example 4 Given $m\angle 12 = 121^\circ$ and $m\angle 6 = 75^\circ$, find the measure of each missing angle.



a. $m\angle 1 = 75^\circ$	e. $m\angle 5 = 46^\circ$	i. $m\angle 10 = 105^\circ$
b. $m\angle 2 = 46^\circ$	f. $m\angle 7 = 121^\circ$	j. $m\angle 11 = 59^\circ$
c. $m\angle 3 = 59^\circ$	g. $m\angle 8 = 59^\circ$	k. $m\angle 13 = 105^\circ$
d. $m\angle 4 = 59^\circ$	h. $m\angle 9 = 75^\circ$	l. $m\angle 14 = 75^\circ$

Example 5 Given $m\angle 2 = 41^\circ$, $m\angle 5 = 94^\circ$, and $m\angle 10 = 109^\circ$, find the measure of each missing angle.



a. $m\angle 1 = 86^\circ$	d. $m\angle 6 = 71^\circ$	g. $m\angle 9 = 41^\circ$
b. $m\angle 3 = 53^\circ$	e. $m\angle 7 = 109^\circ$	
c. $m\angle 4 = 86^\circ$	f. $m\angle 8 = 30^\circ$	