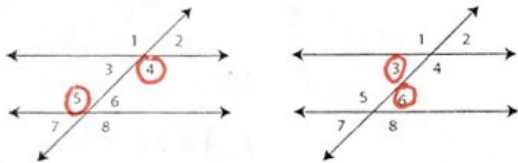


Objective:

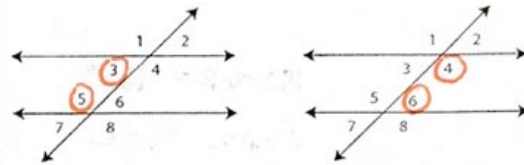
- By the end of you will be able to identify properties of parallel lines cut by a transversal to find angle measures and construct proofs using these properties.

Alternate Interior Angles:



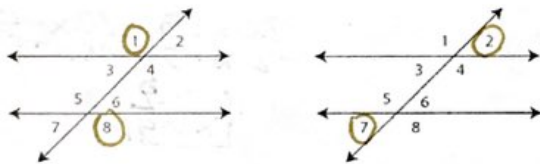
Alternate interior angles are congruent.

Same-Side Interior Angles:



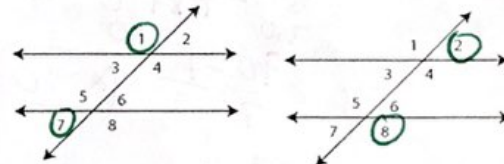
Same-side Interior angles are supplementary

Alternate Exterior Angles:



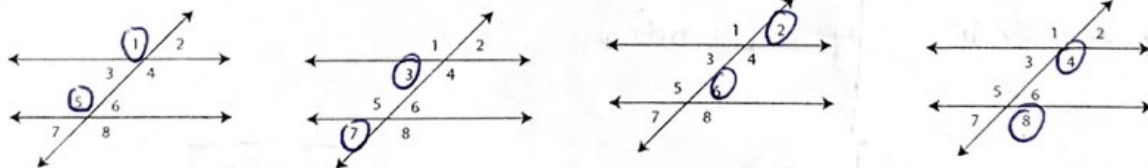
Alternate Exterior angles are congruent

Same-Side Exterior Angles:



Same-side exterior angles are supplementary

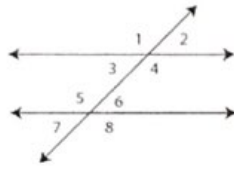
Corresponding Angles:



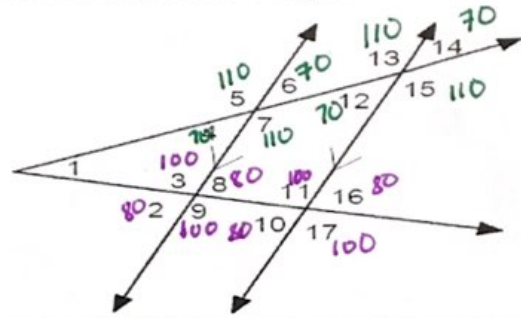
Corresponding angles are congruent.

1. Given that lines that appear parallel are parallel, find the measures of all missing angles.

$m\angle 1 = 120^\circ$	$m\angle 2 = 60^\circ$
$m\angle 3 = 60^\circ$	$m\angle 4 = 120^\circ$
$m\angle 5 = 120^\circ$	$m\angle 6 = 60^\circ$
$m\angle 7 = 60^\circ$	$m\angle 8 = 120^\circ$



2. Given $m\angle 9 = 100^\circ$ and $m\angle 14 = 70^\circ$, find the measures of all the other angles.



Find the missing angle. State the theorems or postulate that justify your answers.

3.

$180 - 62 = 118^\circ$
Same side interior angle theorem

4.

$109 = ?$
Alternate Exterior Angle theorem

Solve for x. State the theorems or postulates that justify your answers.

5.

Corresponding \angle theorem
 $80 = 7x + 10$
 $70 = 7x$
 $x = 10$

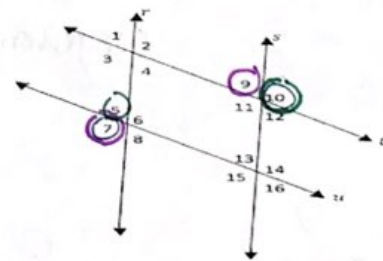
6.

Alternate Interior Angle Theorem
 $20x + 5 = 22x - 5$
 $-20x + 5 = -20x + 5$
 $10 = 2x$
 $x = 5$

Given that that $r \parallel s$ and $t \parallel u$, prove the following:

7. Prove that $\angle 7 \cong \angle 10$.

Statement	Reason
1. $r \parallel s, t \parallel u$	1. Given
2. $\angle 7 \cong \angle 15$	2. Corresponding
3. $\angle 15 \cong \angle 10$	3. Alt. Ext. Angles
4. $\angle 7 \cong \angle 10$	4. Substitution



8. Prove that $\angle 7$ and $\angle 9$ are supplementary.

Statement	Reason
1. $r \parallel s, t \parallel u$	1. Given
2. $\angle 7 + \angle 1 = 180^\circ$	2. Same Side Ext \angle
3. $\angle 1 \cong \angle 9$	3. Corresponding
4. $\angle 7 + \angle 9 = 180^\circ$	4. Substitution

9. Prove that $m\angle 5 + m\angle 10 = 180^\circ$

Statement	Reason
1. $r \parallel s, t \parallel u$	1. Given
2. $\angle 5 + \angle 3 = 180^\circ$	2. Same Side Interior
3. $\angle 3 \cong \angle 10$	3. Alt. Ext. Angles
4. $\angle 5 + \angle 10 = 180^\circ$	4. By Substitution