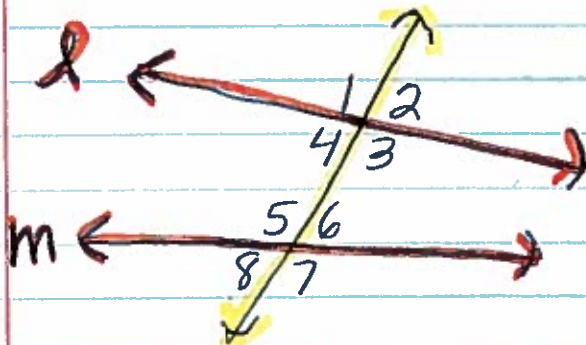


1

3-1 Properties of Parallel Lines

A transversal is a line that intersects 2 coplanar lines at 2 distinct points. 8 \angle 's are formed.



same-side exterior \angle 's:
 $\angle 2 + \angle 7$
 $\angle 1 + \angle 8$

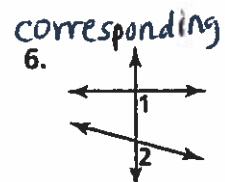
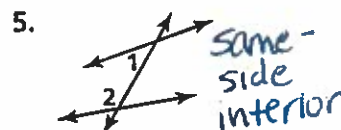
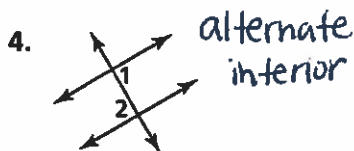
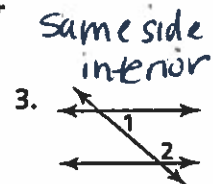
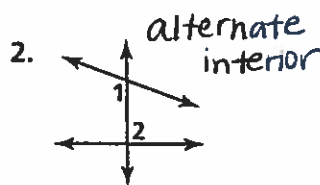
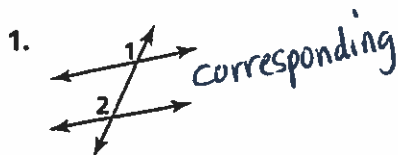
Alternate Interior \angle 's: $\begin{cases} \angle 4 + \angle 6 \\ \angle 3 + \angle 5 \end{cases}$

Alternate Exterior \angle 's: $\begin{cases} \angle 1 + \angle 7 \\ \angle 2 + \angle 8 \end{cases}$

Same-Side Interior \angle 's: $\begin{cases} \angle 4 + \angle 5 \\ \angle 3 + \angle 6 \end{cases}$

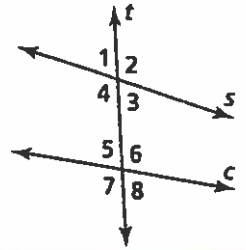
Corresponding \angle 's: $\begin{cases} \angle 2 + \angle 6 \\ \angle 3 + \angle 7 \\ \angle 1 + \angle 5 \\ \angle 4 + \angle 8 \end{cases}$
 same side
 same position

.....
 Classify each pair of angles as *alternate interior angles*, *same-side interior angles*, or *corresponding angles*.



Use the figure on the right to answer Exercises 7-9.

7. Name all pairs of corresponding angles formed by the transversal t and lines s and c .
8. Name all pairs of alternate interior angles formed by the transversal t and lines s and c .
9. Name all pairs of same-side interior angles formed by the transversal t and lines s and c .

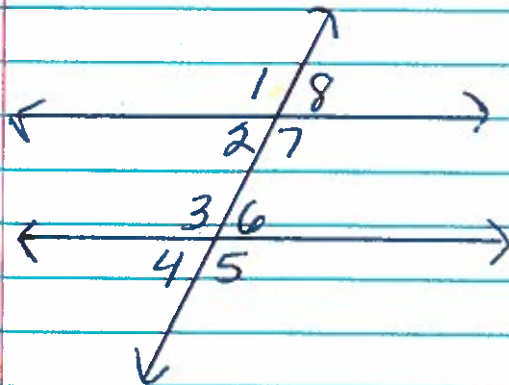


7

8

9

Draw parallel lines and a transversal.



use patty paper to
 Find all \sphericalangle 's
 \cong to $\sphericalangle 1$.
 and all \sphericalangle 's \cong to
 $\sphericalangle 2$.

$\sphericalangle 1 \cong$ to : $\sphericalangle 7, \sphericalangle 3, \sphericalangle 5$

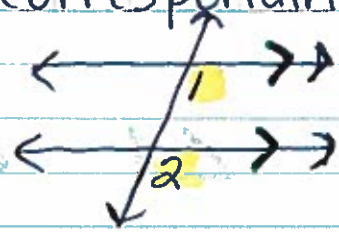
$\sphericalangle 2 \cong$ to : $\sphericalangle 4, \sphericalangle 6, \sphericalangle 8$

$\sphericalangle 1$ is supplementary to $\sphericalangle 2, \sphericalangle 4, \sphericalangle 6, \sphericalangle 8$

$\sphericalangle 2$ is supplementary to $\sphericalangle 1, \sphericalangle 3, \sphericalangle 5, \sphericalangle 7$

Corresponding Angles Postulate:
If a transversal intersects 2 parallel lines, then corresponding \angle 's are \cong .

$$\angle 1 \cong \angle 2$$

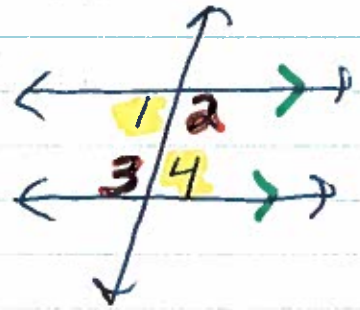


* corresponding \angle 's are located on the same side of the transversal in the same position.

Alternate Interior \angle 's Theorem:
If a transversal intersects 2 || lines, then alt. int. \angle 's are \cong .

$$\angle 1 \cong \angle 4$$

$$\angle 2 \cong \angle 3$$



Same-Side Interior \angle 's Theorem:
If a transversal intersects 2 || lines, then same-side interior \angle 's are supplementary.

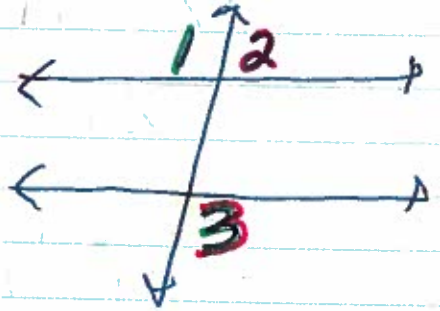
$$m\angle 1 + m\angle 2 = 180^\circ$$

$$m\angle 3 + m\angle 4 = 180^\circ$$

} From picture above

Alternate Exterior \angle 's Theorem:
 If a transversal intersects
 2 ll lines, then alt. ext. \angle 's are \cong .

$$\angle 1 \cong \angle 3$$

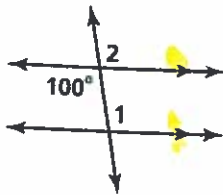


Same-Side Exterior \angle 's Thm:
 If a transversal intersects
 2 ll lines, same-side ext. \angle 's are
supplementary.

$$m\angle 2 + m\angle 3 = 180^\circ$$

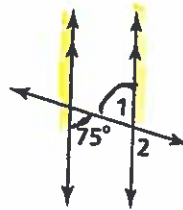
Find $m\angle 1$ and then $m\angle 2$. Justify each answer.

10.



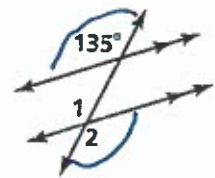
$$\begin{aligned} \angle 1 &= 100^\circ \\ \text{alt. interior} \\ \angle 2 &= 100^\circ \\ \text{vertical} \end{aligned}$$

11.



$$\begin{aligned} \angle 1 &= 75^\circ \\ \text{alt. interior} \\ \angle 2 &= 75^\circ \\ \text{corresponding} \end{aligned}$$

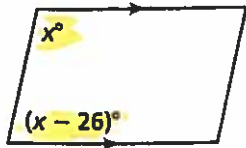
12.



$$\begin{aligned} \angle 1 &= 135^\circ \\ \text{corresponding} \\ \angle 2 &= 135^\circ \\ \text{alt. exterior} \end{aligned}$$

Algebra Find the value of x . Then find the measure of each angle.

13.



Parallelogram

same-side interior

$$x + x - 26 = 180$$

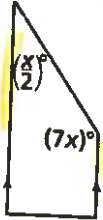
$$\quad \quad + 26 \quad + 26$$

$$2x = 206$$

$$\frac{2x}{2} = \frac{206}{2}$$

$$x = 103$$

14.



trapezoid

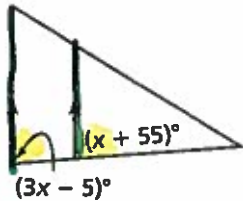
same-side interior

$$\frac{1x}{2} + 7x = 180$$

$$\frac{7\frac{1}{2}x}{7\frac{1}{2}} = \frac{180}{7\frac{1}{2}}$$

$$x = 24$$

15.



corresponding \angle 's \cong

$$\frac{3x - 5}{-x + 5} = \frac{x + 55}{-x + 5}$$

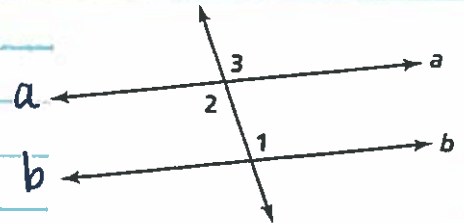
$$\frac{2x}{2} = \frac{60}{2}$$

$$x = 30$$

16. Developing Proof Supply the missing reasons in this two-column proof.

Given: $a \parallel b$

Prove: $\angle 1 \cong \angle 3$



Statements	Reasons
1. $a \parallel b$	1. Given
2. $\angle 1 \cong \angle 2$	2. Alternate Interior \angle thm
3. $\angle 2 \cong \angle 3$	3. Vertical \angle Thm (Theorem)
4. $\angle 1 \cong \angle 3$	4. Transitive Property

p. 131 (1-17, 19-25, 33-39)

Warm-ups:

Day 21

Question 16

Line segment AC has endpoints A (-1, -3.5) and C (5, -1).

Point B is on line segment AC and is located at (0.2, -3).

What is the ratio of $\frac{AB}{BC}$?

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$
$$\frac{AB}{BC} = \frac{\sqrt{1.69}}{\sqrt{27.04}} = \frac{1.3}{5.2}$$

← → ↶ ↷ ✕

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

Points Possible: 1

Content Domain: Expressing Geometric Properties with Equations

Content Standard: Find the point on a directed line segment between two given points that partitions the segment in a given ratio. (G.GPE.6)