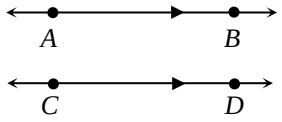
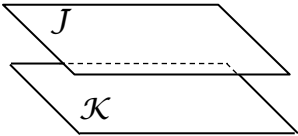
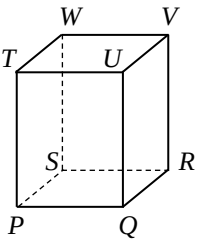
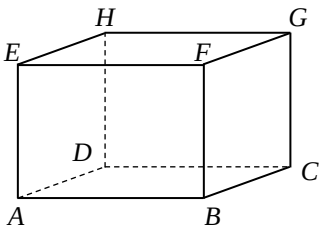
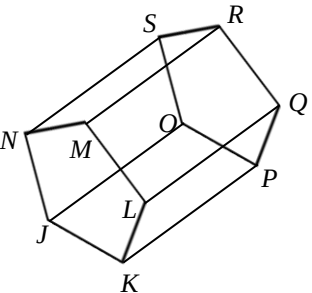
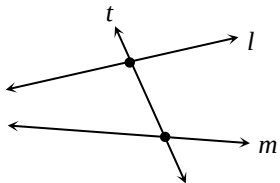
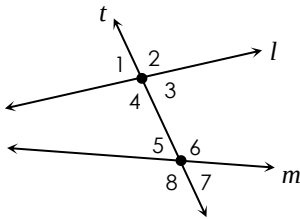
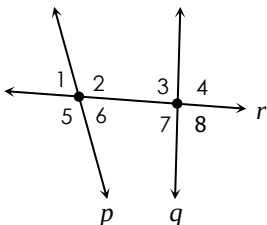
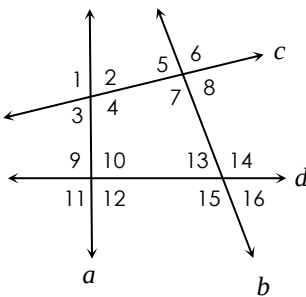
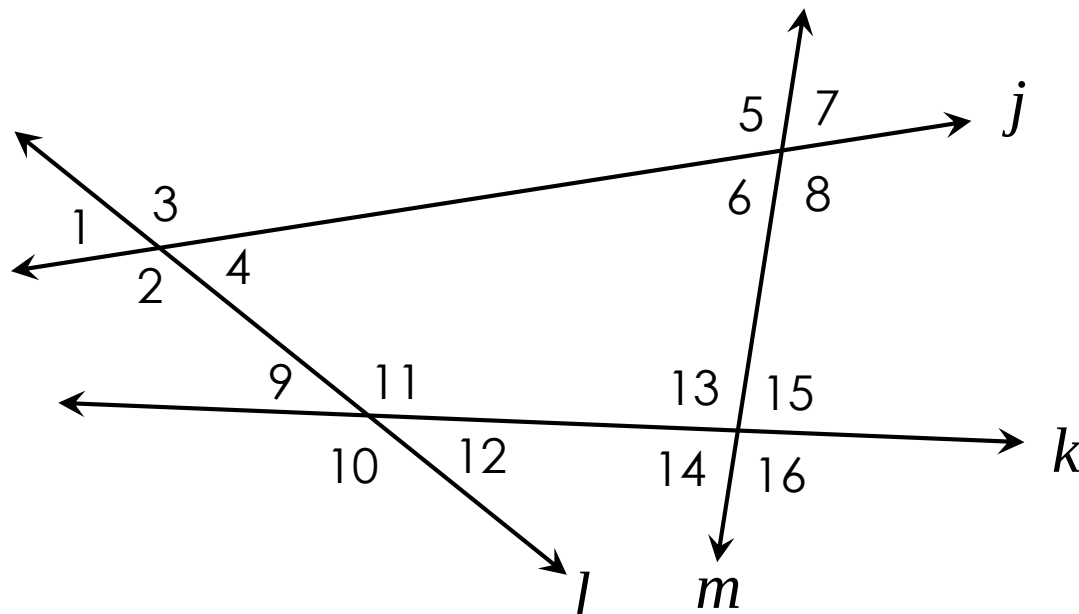


Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
PARALLEL <i>Lines</i>	_____ lines that never _____. _____ are used to indicate the lines are parallel. Symbolic Notation: _____	
PARALLEL <i>Planes</i>	_____ that never _____. Symbolic Notation: _____	
SKEW <i>Lines</i>	_____ lines that never _____. Examples: _____ & _____ _____ & _____ _____ & _____	
EXAMPLE 1 	a. Name all segments parallel to $\overline{AE}$. _____ b. Give two examples of parallel planes. (1) _____ & _____ (2) _____ & _____ c. Name all segments skew to $\overline{GH}$. _____	
EXAMPLE 2 	a. Name all segments parallel to $\overline{JK}$. _____ b. Name all segments parallel to $\overline{NS}$. _____ c. Name a plane parallel to plane JKL. _____ d. Name four segments skew to $\overline{RQ}$. _____	

TRANSVERSAL		- A line that intersects two or more lines. Example: _____	
ANGLES <i>formed by a</i> TRANSVERSAL 	Angle Pair	Examples	
	Corresponding Angles Angles on the same side of the transversal and in the same position.	_____, _____ _____, _____	
	Alternate Interior Angles Interior angles, non-adjacent, and on opposite sides of the transversal.	_____, _____ _____	
	Alternate Exterior Angles Exterior angles, non-adjacent, and on opposite sides of the transversal.	_____, _____ _____	
	Consecutive (Same-Side) Interior Angles Interior angles that are on the same side of the transversal.	_____, _____ _____	
	Consecutive (Same-Side) Exterior Angles Exterior angles that are on the same side of the transversal.	_____, _____ _____	
EXAMPLE 3 	Name the type of angle relationship. If no relationship exists, write "none."		
	a. $\angle 1$ and $\angle 8$		
	b. $\angle 2$ and $\angle 3$		
	c. $\angle 5$ and $\angle 7$		
	d. $\angle 2$ and $\angle 7$		
	e. $\angle 1$ and $\angle 3$		
	f. $\angle 5$ and $\angle 8$		
EXAMPLE 4 			
	a. $\angle 5$ and $\angle 13$		
	b. $\angle 7$ and $\angle 14$		
	c. $\angle 3$ and $\angle 6$		
	d. $\angle 9$ and $\angle 14$		
	e. $\angle 4$ and $\angle 7$		
	f. $\angle 2$ and $\angle 10$		
	g. $\angle 8$ and $\angle 14$		
	h. $\angle 6$ and $\angle 11$		
	i. $\angle 4$ and $\angle 13$		
	j. $\angle 4$ and $\angle 9$		

ANGLES *formed by a* TRANSVERSAL



NAME THAT TRANSVERSAL!

$\angle 1$ and $\angle 12$: _____

$\angle 3$ and $\angle 6$: _____

$\angle 7$ and $\angle 15$: _____

$\angle 12$ and $\angle 14$: _____

Corresponding Angles

- _____
- _____
- _____
- _____
- _____

Alternate Interior Angles

- _____
- _____
- _____
- _____
- _____

Alternate Exterior Angles

- _____
- _____
- _____
- _____
- _____

**Consecutive
(Same-Side)
Interior Angles**

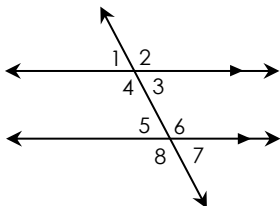
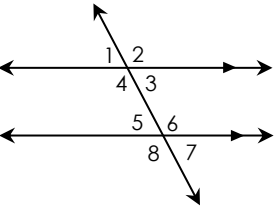
- _____
- _____
- _____
- _____
- _____

**Consecutive
(Same-Side)
Exterior Angles**

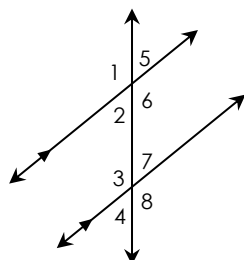
- _____
- _____
- _____
- _____
- _____

NON-EXAMPLES:

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
PARALLEL LINES <i>& transversals:</i>	If two PARALLEL lines are cut by a transversal, then:	
	- Corresponding angles are _____. - Alternate Interior angles are _____. - Alternate Exterior angles are _____. - Consecutive (Same-Side) Interior angles are _____. - Consecutive (Same-Side) Exterior angles are _____. - And recall from Unit 1, vertical angles are always <u>congruent</u> and angles that form a linear pair are always <u>supplementary</u>.	
EXAMPLE 1 	Identify the angle pair as congruent or supplementary. Give your reasoning.	
	a. $\angle 3$ and $\angle 5$	
	b. $\angle 1$ and $\angle 8$	
	c. $\angle 2$ and $\angle 6$	
	d. $\angle 1$ and $\angle 7$	
	e. $\angle 4$ and $\angle 5$	
	f. $\angle 3$ and $\angle 7$	
	g. $\angle 5$ and $\angle 6$	
	h. $\angle 2$ and $\angle 4$	
EXAMPLE 2 	If $m\angle 1 = 65^\circ$, find each measure. Give your reasoning.	
	a. $m\angle 2 =$	
	b. $m\angle 3 =$	
	c. $m\angle 4 =$	
	d. $m\angle 5 =$	
	e. $m\angle 6 =$	
	f. $m\angle 7 =$	
	g. $m\angle 8 =$	

EXAMPLE 3



If $m\angle 6 = 142^\circ$, find each measure. Give your reasoning.

a. $m\angle 1 =$

b. $m\angle 2 =$

c. $m\angle 3 =$

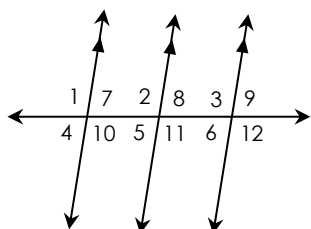
d. $m\angle 4 =$

e. $m\angle 5 =$

f. $m\angle 7 =$

g. $m\angle 8 =$

EXAMPLE 4



If $m\angle 5 = 82^\circ$, find each measure.

a. $m\angle 1 =$

e. $m\angle 6 =$

i. $m\angle 10 =$

b. $m\angle 2 =$

f. $m\angle 7 =$

j. $m\angle 11 =$

c. $m\angle 3 =$

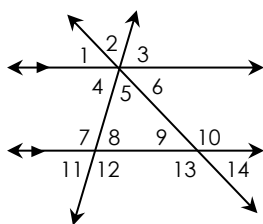
g. $m\angle 8 =$

k. $m\angle 12 =$

d. $m\angle 4 =$

h. $m\angle 9 =$

EXAMPLE 5



If $m\angle 12 = 121^\circ$ and $m\angle 6 = 75^\circ$, find each measure.

a. $m\angle 1 =$

e. $m\angle 5 =$

i. $m\angle 10 =$

b. $m\angle 2 =$

f. $m\angle 7 =$

j. $m\angle 11 =$

c. $m\angle 3 =$

g. $m\angle 8 =$

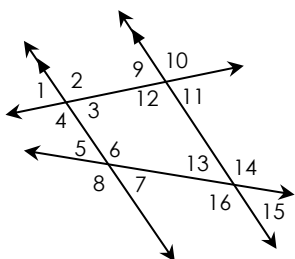
k. $m\angle 13 =$

d. $m\angle 4 =$

h. $m\angle 9 =$

l. $m\angle 14 =$

EXAMPLE 6



If $m\angle 7 = 38^\circ$ and $m\angle 10 = 102^\circ$, find each measure.

a. $m\angle 1 =$

f. $m\angle 6 =$

k. $m\angle 13 =$

b. $m\angle 2 =$

g. $m\angle 8 =$

l. $m\angle 14 =$

c. $m\angle 3 =$

h. $m\angle 9 =$

m. $m\angle 15 =$

d. $m\angle 4 =$

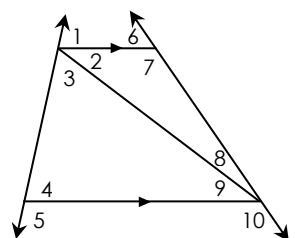
i. $m\angle 11 =$

n. $m\angle 16 =$

e. $m\angle 5 =$

j. $m\angle 12 =$

EXAMPLE 7



If $m\angle 2 = 41^\circ$, $m\angle 5 = 94^\circ$, and $m\angle 10 = 109^\circ$, find each measure.

a. $m\angle 1 =$

d. $m\angle 6 =$

g. $m\angle 9 =$

b. $m\angle 3 =$

e. $m\angle 7 =$

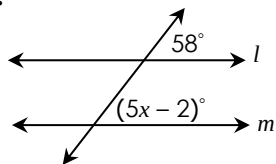
c. $m\angle 4 =$

f. $m\angle 8 =$

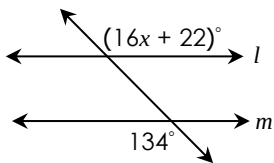
Parallel Lines, Transversals, and Algebra

Directions: If $l \parallel m$, classify the marked angle pair and give their relationship, then solve for x .

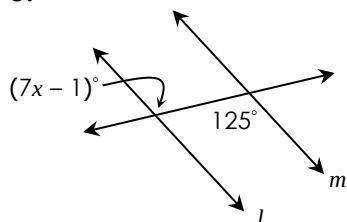
1.



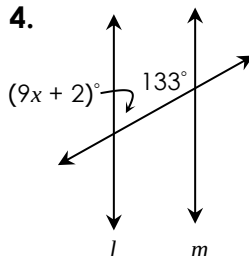
2.



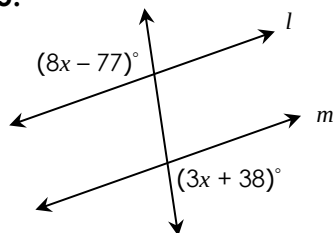
3.



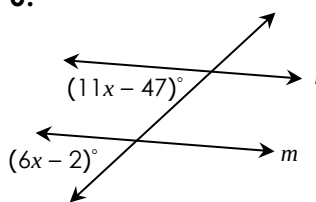
4.



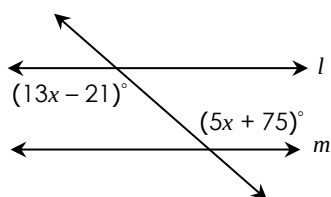
5.



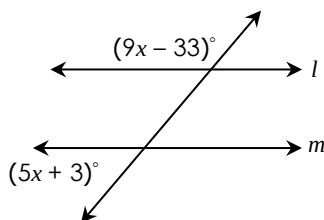
6.



7.

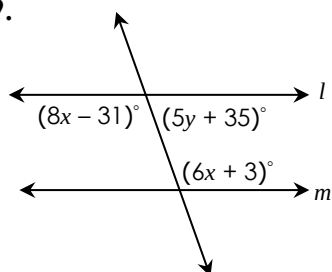


8.

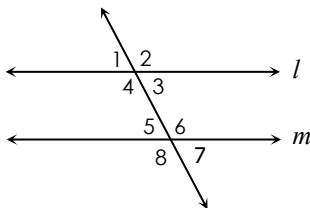
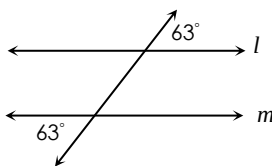
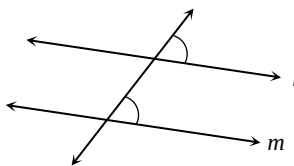
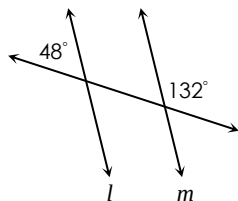
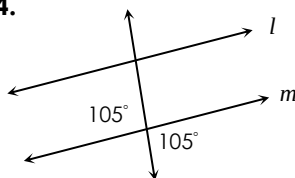
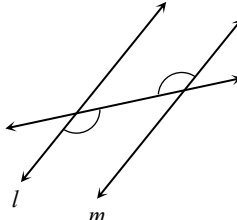
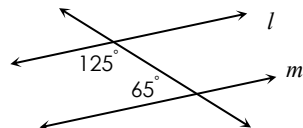


Directions: If $l \parallel m$, find the value of x and y .

9.



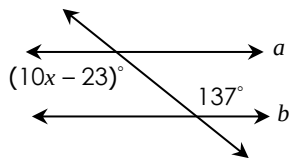
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples		
PROVING LINES <i>are</i> PARALLEL 	You can prove lines are parallel using the following reasons:		
	Corresponding Angles Converse If two lines are cut by a transversal so that a pair of corresponding angles are congruent, then the lines are parallel.	Example:	
	Alternate Interior Angles Converse If two lines are cut by a transversal so that a pair of alternate interior angles are congruent, then the lines are parallel.	Example:	
	Alternate Exterior Angles Converse If two lines are cut by a transversal so that a pair of alternate exterior angles are congruent, then the lines are parallel.	Example:	
	Consecutive Interior Angles Converse If two lines are cut by a transversal so that a pair of consecutive interior angles are supplementary, then the lines are parallel.	Example:	
	Consecutive Exterior Angles Converse If two lines are cut by a transversal so that a pair of consecutive exterior angles are supplementary, then the lines are parallel.	Example:	
EXAMPLES	Determine if $l \parallel m$ based on the information given on the diagram. If yes, state the converse that proves the lines are parallel.		
	1. 	2. 	3. 
	4. 	5. 	6. 

Proving Lines are Parallel with Algebra

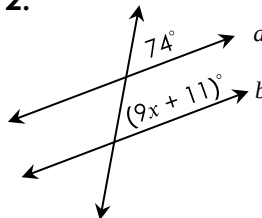
Directions: Find x so that $a \parallel b$. State the converse used.

1.



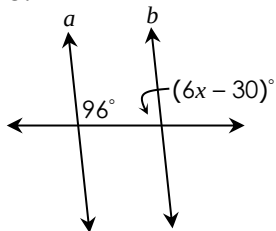
Converse: _____

2.



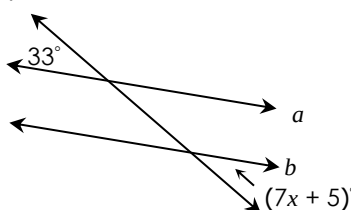
Converse: _____

3.



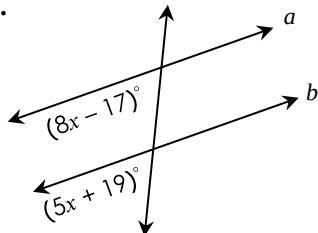
Converse: _____

4.



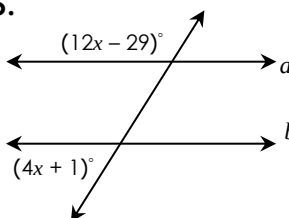
Converse: _____

5.



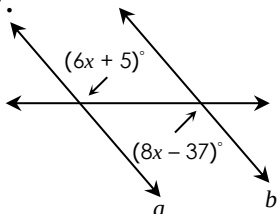
Converse: _____

6.



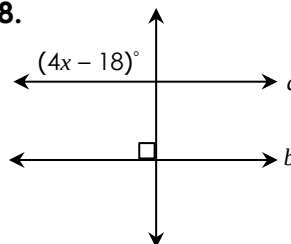
Converse: _____

7.



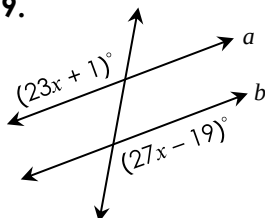
Converse: _____

8.



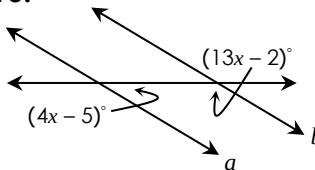
Converse: _____

9.



Converse: _____

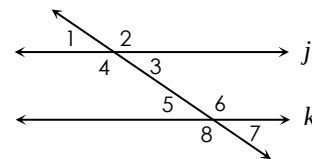
10.



Converse: _____

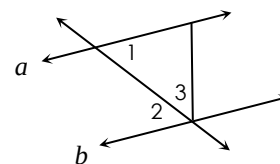
PARALLEL LINE *Proofs*

- 1** **Given:** $\angle 4$ and $\angle 7$ are supplementary
Prove: $j \parallel k$



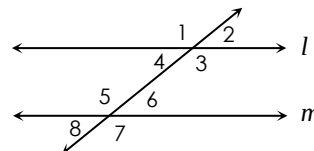
Statements	Reasons

- 2** **Given:** $a \parallel b$, $\angle 2 \cong \angle 3$
Prove: $\angle 1 \cong \angle 3$



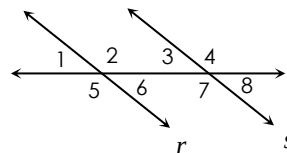
Statements	Reasons

- 3** **Given:** $\angle 1 \cong \angle 7$
Prove: $\angle 4 \cong \angle 8$



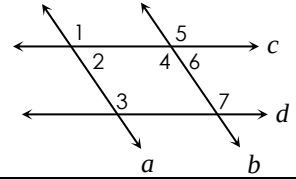
Statements	Reasons

- 4** **Given:** $\angle 5$ and $\angle 8$ are supplementary
Prove: $\angle 3 \cong \angle 6$



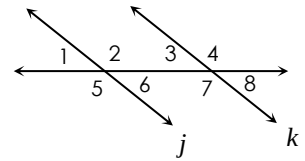
Statements	Reasons

5

Given: $c \parallel d$, $\angle 1 \cong \angle 7$ **Prove:** $a \parallel b$ 

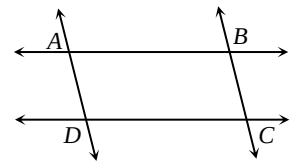
Statements	Reasons

6

Given: $j \parallel k$ **Prove:** $\angle 1$ and $\angle 7$ are supplementary

Statements	Reasons

7

Given: $\overrightarrow{AB} \parallel \overrightarrow{CD}$; $m\angle ABC = m\angle ADC$ **Prove:** $\overrightarrow{AD} \parallel \overrightarrow{BC}$ 

Statements	Reasons