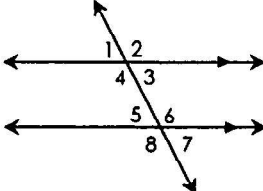
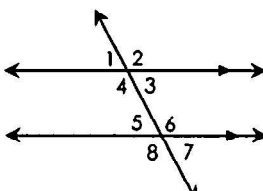
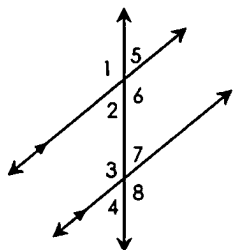


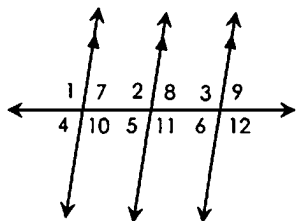
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
PARALLEL LINES <i>& transversals:</i>	If two PARALLEL lines are cut by a transversal, then:
	- Corresponding angles are <u>Congruent</u>. - Alternate Interior angles are <u>Congruent</u>. - Alternate Exterior angles are <u>Congruent</u>. - Consecutive (Same-Side) Interior angles are <u>Supplementary</u>. - Consecutive (Same-Side) Exterior angles are <u>Supplementary</u>. - 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 $\angle 5$ Congruent; alternate interior
	b. $\angle 1$ and $\angle 8$ Supplementary; consecutive exterior
	c. $\angle 2$ and $\angle 6$ Congruent; corresponding
	d. $\angle 1$ and $\angle 7$ Congruent; alternate exterior
	e. $\angle 4$ and $\angle 5$ Supplementary; consecutive interior
	f. $\angle 3$ and $\angle 7$ Congruent; corresponding
	g. $\angle 5$ and $\angle 6$ Supplementary; linear pair
	h. $\angle 2$ and $\angle 4$ Congruent; vertical
EXAMPLE 2 	If $m\angle 1 = 65^\circ$, find each measure. Give your reasoning.
	a. $m\angle 2 = 115^\circ$ linear pair to $\angle 1$
	b. $m\angle 3 = 65^\circ$ vertical to $\angle 1$
	c. $m\angle 4 = 115^\circ$ vertical to $\angle 2$
	d. $m\angle 5 = 65^\circ$ corresponding to $\angle 1$
	e. $m\angle 6 = 115^\circ$ alternate interior to $\angle 4$
	f. $m\angle 7 = 65^\circ$ alternate exterior to $\angle 1$
	g. $m\angle 8 = 115^\circ$ consecutive exterior to $\angle 1$

EXAMPLE 3

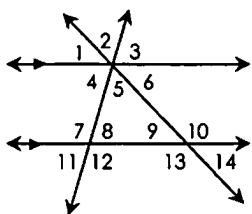
If $m\angle 6 = 142^\circ$, find each measure. Give your reasoning.

a. $m\angle 1 = 142^\circ$	Vertical to $\angle 6$
b. $m\angle 2 = 38^\circ$	linear pair to $\angle 6$
c. $m\angle 3 = 142^\circ$	alternate interior to $\angle 6$
d. $m\angle 4 = 38^\circ$	Corresponding to $\angle 2$
e. $m\angle 5 = 38^\circ$	Vertical to $\angle 2$
f. $m\angle 7 = 38^\circ$	Consecutive interior to $\angle 6$
g. $m\angle 8 = 142^\circ$	Consecutive exterior to $\angle 5$

EXAMPLE 4

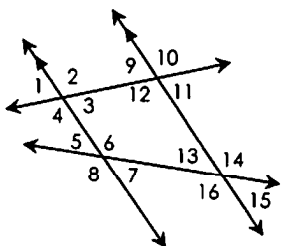
If $m\angle 5 = 82^\circ$, find each measure.

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 5

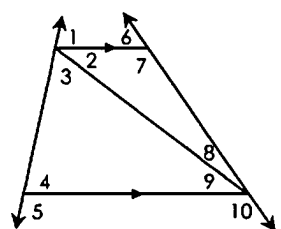
If $m\angle 12 = 121^\circ$ and $m\angle 6 = 75^\circ$, find each measure.

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 6

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

a. $m\angle 1 = 78^\circ$	f. $m\angle 6 = 142^\circ$	k. $m\angle 13 = 38^\circ$
b. $m\angle 2 = 102^\circ$	g. $m\angle 8 = 142^\circ$	l. $m\angle 14 = 142^\circ$
c. $m\angle 3 = 78^\circ$	h. $m\angle 9 = 78^\circ$	m. $m\angle 15 = 38^\circ$
d. $m\angle 4 = 102^\circ$	i. $m\angle 11 = 78^\circ$	n. $m\angle 16 = 142^\circ$
e. $m\angle 5 = 38^\circ$	j. $m\angle 12 = 102^\circ$	

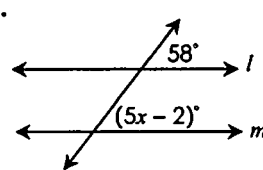
EXAMPLE 7

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

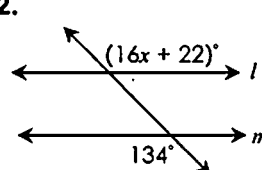
a. $m\angle 1 = 86^\circ$	d. $m\angle 6 = 71^\circ$	g. $m\angle 9 = 41^\circ$
b. $m\angle 3 = 53^\circ$	e. $m\angle 7 = 109^\circ$	
c. $m\angle 4 = 86^\circ$	f. $m\angle 8 = 30^\circ$	

Parallel Lines, Transversals, and Algebra

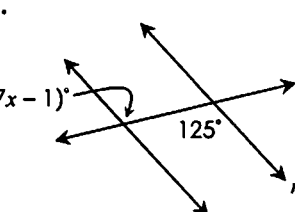
Directions: If $l \parallel m$, classify the marked angle pair and give their relationship, then solve for x .

1.  $5x - 2 = 58$
 $5x = 60$
 $x = 12$

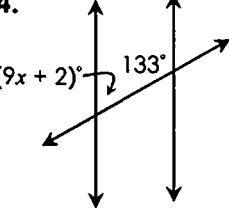
Corresponding

2.  $16x + 22 = 134$
 $16x = 112$
 $x = 7$

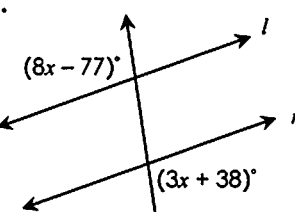
alternate exterior

3.  $7x - 1 = 125$
 $7x = 126$
 $x = 18$

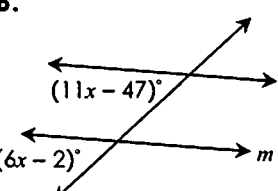
Alternate interior

4.  $9x + 2 + 133 = 180$
 $9x + 135 = 180$
 $9x = 45$
 $x = 5$

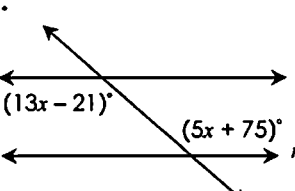
Consecutive interior

5.  $8x - 77 = 3x + 38$
 $5x - 77 = 38$
 $5x = 115$
 $x = 23$

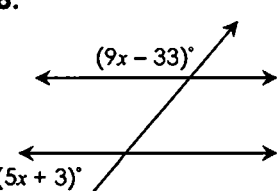
Alternate exterior

6.  $6x - 2 = 11x - 47$
 $-2 = 5x - 47$
 $45 = 5x$
 $x = 9$

Corresponding

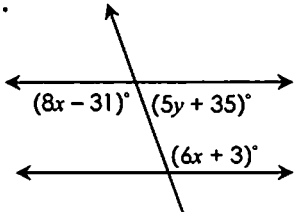
7.  $13x - 21 = 5x + 75$
 $8x - 21 = 75$
 $8x = 96$
 $x = 12$

Alternate interior

8.  $5x + 3 + 9x - 33 = 180$
 $14x - 30 = 180$
 $14x = 210$
 $x = 15$

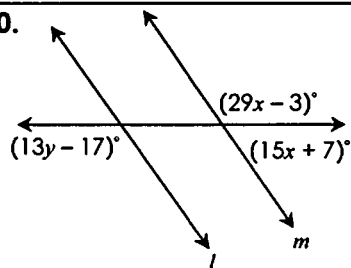
Consecutive exterior

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

9.  $8x - 31 = 6x + 3$
 $2x - 31 = 3$
 $2x = 34$
 $x = 17$

$(6(17) + 3) + (5y + 35) = 180$
 $105 + 5y + 35 = 180$
 $5y + 140 = 180$
 $5y = 40$
 $y = 8$

10.



$$29x - 3 + 15x + 7 = 180$$

$$44x + 4 = 180$$

$$44x = 176$$

$$x = 4$$

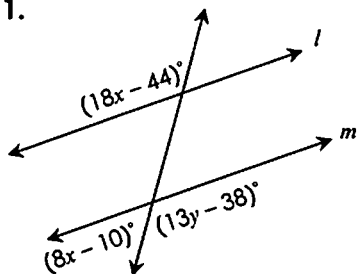
$$29(4) - 3 = 13y - 17$$

$$113 = 13y - 17$$

$$130 = 13y$$

$$y = 10$$

11.



$$18x - 44 + 8x - 10 = 180$$

$$26x - 54 = 180$$

$$26x = 234$$

$$x = 9$$

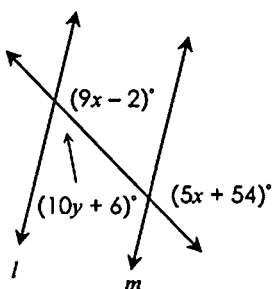
$$18(9) - 44 = 13y - 38$$

$$118 = 13y - 38$$

$$156 = 13y$$

$$y = 12$$

12.



$$9x - 2 = 5x + 54$$

$$4x - 2 = 54$$

$$4x = 56$$

$$x = 14$$

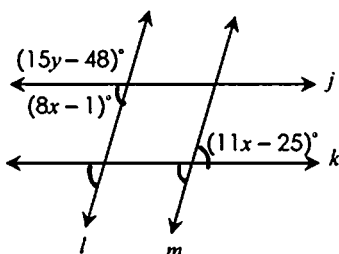
$$9(14) - 2 + 10y + 6 = 180$$

$$124 + 10y + 6 = 180$$

$$10y + 130 = 180$$

$$10y = 50$$

$$y = 5$$

13. Note: $j \parallel k$ and $l \parallel m$ 

$$8x - 1 = 11x - 25$$

$$-1 = 3x - 25$$

$$24 = 3x$$

$$x = 8$$

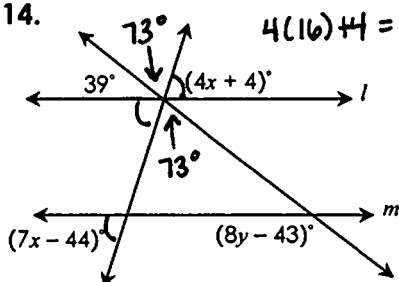
$$8(8) - 1 + 15y - 48 = 180$$

$$63 + 15y - 48 = 180$$

$$15y = 165$$

$$y = 11$$

14.



$$4(16) + 4 = 68^\circ$$

$$7x - 44 = 4x + 4$$

$$3x - 44 = 4$$

$$3x = 48$$

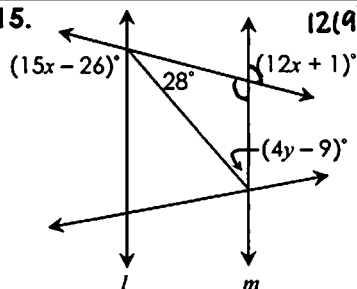
$$x = 16$$

$$8y - 43 = 141$$

$$8y = 184$$

$$y = 23$$

15.



$$12(9) + 1 = 109^\circ$$

$$15x - 26 = 12x + 1$$

$$3x - 26 = 1$$

$$3x = 27$$

$$x = 9$$

$$28 + 109 + 4y - 9 = 180$$

$$4y + 128 = 180$$

$$4y = 52$$

$$y = 13$$