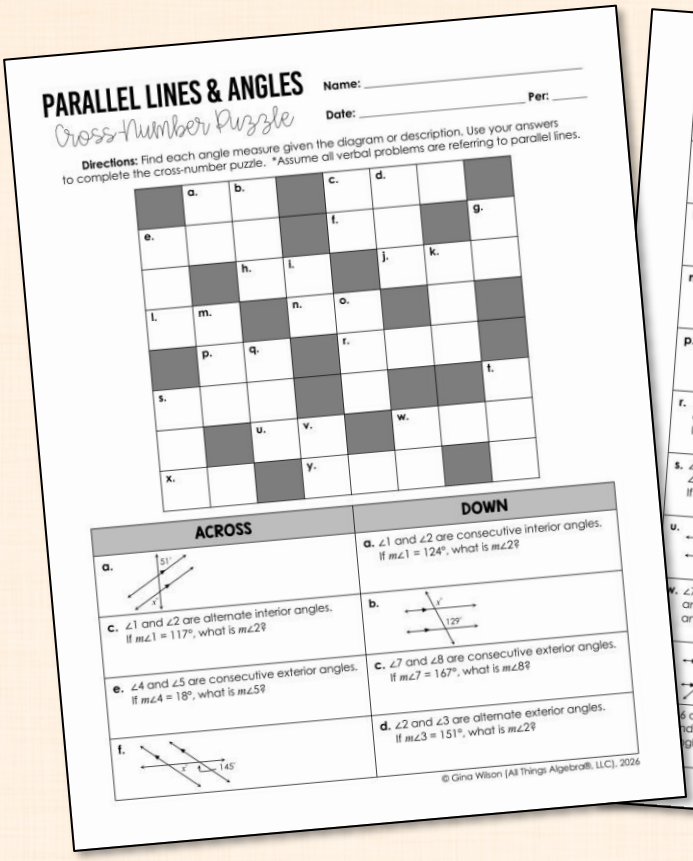


PARALLEL LINES & ANGLES

Cross Number Puzzle

Name: _____

Date: _____ Per: ____

Directions: Find each angle measure given the diagram or description. Use your answers to complete the cross-number puzzle. *Assume all verbal problems are referring to parallel lines.

ACROSS	DOWN
a. 51°	**a.** ∠1 and ∠2 are consecutive interior angles. If $m\angle1 = 124°$, what is $m\angle2$?
c. ∠1 and ∠2 are alternate interior angles. If $m\angle1 = 117°$, what is $m\angle2$?	**b.** x°, 129°
e. ∠4 and ∠5 are consecutive exterior angles. If $m\angle4 = 18°$, what is $m\angle5$?	**c.** ∠7 and ∠8 are consecutive exterior angles. If $m\angle7 = 167°$, what is $m\angle8$?
f. x°, 145°	**d.** ∠2 and ∠3 are alternate exterior angles. If $m\angle3 = 151°$, what is $m\angle2$?

ACROSS	DOWN
h. ∠3 and ∠4 are corresponding angles. If $m\angle3 = 96°$, what is $m\angle4$?	**e.** ∠1 and ∠2 are same-side interior angles. If $m\angle2 = 43°$, what is $m\angle1$?
j. ∠1 and ∠2 are alternate interior angles, and ∠2 and ∠3 are supplementary angles. If $m\angle3 = 61°$, what is $m\angle1$?	**g.** ∠4 and ∠5 corresponding angles, and ∠5 and ∠6 are complementary angles. If $m\angle6 = 61°$, what is $m\angle4$?
l. 109°, x°	**i.** 112°, x°
n. x°, 99°	**k.** ∠7 and ∠8 consecutive exterior angles, and ∠8 and ∠9 are vertical angles. If $m\angle9 = 39°$, what is $m\angle7$?
p. ∠7 and ∠8 are alternate exterior angles, and ∠8 and ∠9 are complementary angles. If $m\angle9 = 29°$, what is $m\angle7$?	**m.** 164°, x°
r. ∠4 and ∠5 are same-side interior angles, and ∠5 and ∠6 are vertical angles. If $m\angle6 = 59°$, what is $m\angle4$?	**o.** ∠3 and ∠4 alternate interior angles, and ∠4 and ∠5 are supplementary angles. If $m\angle5 = 66°$, what is $m\angle3$?
s. ∠1 and ∠2 are supplementary angles, and ∠2 and ∠3 are corresponding angles. If $m\angle1 = 37°$, what is $m\angle3$?	**q.** ∠1 and ∠2 same-side interior angles, and ∠2 and ∠3 are vertical angles. If $m\angle3 = 48°$, what is $m\angle1$?
u. 66°, x°	**s.** 19°, x°
w. ∠7 and ∠8 are complementary angles, and ∠8 and ∠9 are same-side exterior angles. If $m\angle7 = 34°$, what is $m\angle9$?	**t.** ∠6 and ∠7 supplementary angles, and ∠7 and ∠8 are corresponding angles. If $m\angle6 = 35°$, what is $m\angle8$?
44°, 136°	**v.** ∠4 and ∠5 alternate exterior angles, and ∠5 and ∠6 are complementary angles. If $m\angle4 = 49°$, what is $m\angle6$?
∠6 and ∠7 are complementary angles, and ∠7 and ∠8 are same-side exterior angles. If $m\angle6 = 68°$, what is $m\angle8$?	**w.** 81°, x°, 99°

PARALLEL LINES

Cut by a Transversal

CROSS NUMBER PUZZLE

all things ALGEBRA®

PARALLEL LINES & ANGLES

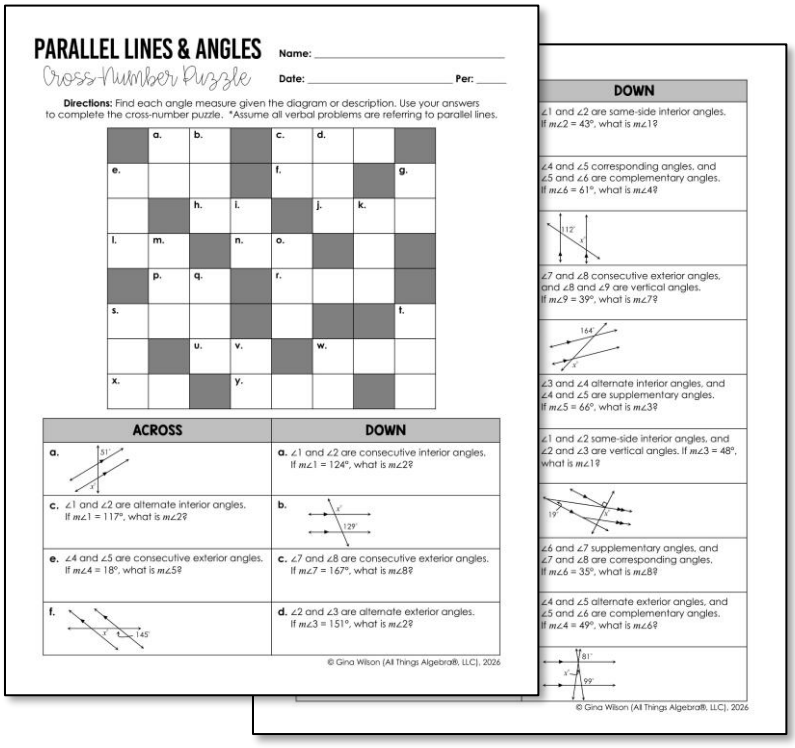
Cross-Number Puzzle

Objective: Students will use their understanding of angle relationships formed when parallel lines are cut by a transversal, including corresponding angles, alternate interior angles, alternate exterior angles, consecutive interior angles, and consecutive exterior angles, to find missing angle measures. The activity also incorporates complementary, supplementary, and vertical angles to reinforce these additional relationships. No algebra is required. While some diagrams are included, the activity is primarily vocabulary-focused and emphasizes identifying and applying angle relationships.

NOTE: There are two versions of this activity: one that uses the terms **consecutive interior** and **consecutive exterior angles**, and another that uses **same-side interior** and **same-side exterior angles**. Choose the version that best suits your needs.

Directions:
This activity is similar to a crossword puzzle, but instead of filling in letters, students fill in numbers. There are both Across and Down problems. Students find the angle measure given each diagram or description and record their answers in the puzzle accordingly. The puzzle is self-checking, allowing students to spot and correct errors if their answers do not fit.

There are 30 problems included. This activity can be completed independently or with a partner. When working in pairs, one partner can complete the Across problems while the other works on the Down problems.



PARALLEL LINES & ANGLES

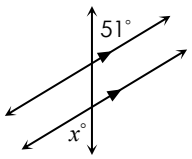
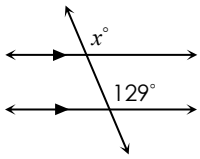
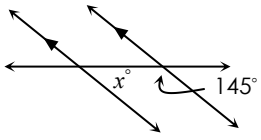
Cross-Number Puzzle

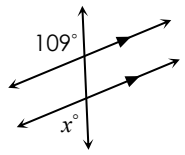
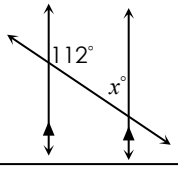
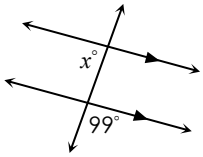
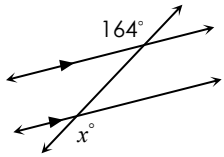
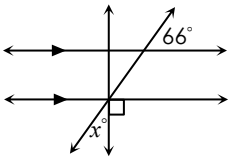
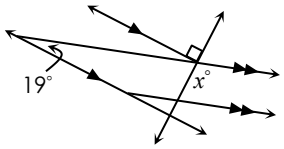
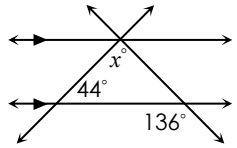
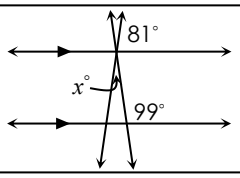
Name: _____

Date: _____ **Per:** _____

Directions: Find each angle measure given the diagram or description. Use your answers to complete the cross-number puzzle. *Assume all verbal problems are referring to parallel lines.

	a.	**b.**		**c.**	**d.**		
e.				**f.**			**g.**
		h.	**i.**		**j.**	**k.**	
l.	**m.**		**n.**	**o.**			
	p.	**q.**		**r.**			
s.							**t.**
		u.	**v.**		**w.**		
x.			**y.**				

ACROSS	DOWN
a. 	**a.** ∠1 and ∠2 are consecutive interior angles. If $m\angle 1 = 124°$, what is $m\angle 2$?
c. ∠1 and ∠2 are alternate interior angles. If $m\angle 1 = 117°$, what is $m\angle 2$?	**b.** 
e. ∠4 and ∠5 are consecutive exterior angles. If $m\angle 4 = 18°$, what is $m\angle 5$?	**c.** ∠7 and ∠8 are consecutive exterior angles. If $m\angle 7 = 167°$, what is $m\angle 8$?
f. 	**d.** ∠2 and ∠3 are alternate exterior angles. If $m\angle 3 = 151°$, what is $m\angle 2$?

ACROSS	DOWN
h. ∠3 and ∠4 are corresponding angles. If $m\angle 3 = 96°$, what is $m\angle 4$?	**e.** ∠1 and ∠2 are consecutive interior angles. If $m\angle 2 = 43°$, what is $m\angle 1$?
j. ∠1 and ∠2 are alternate interior angles, and ∠2 and ∠3 are supplementary angles. If $m\angle 3 = 61°$, what is $m\angle 1$?	**g.** ∠4 and ∠5 corresponding angles, and ∠5 and ∠6 are complementary angles. If $m\angle 6 = 61°$, what is $m\angle 4$?
l. 	**i.** 
n. 	**k.** ∠7 and ∠8 consecutive exterior angles, and ∠8 and ∠9 are vertical angles. If $m\angle 9 = 39°$, what is $m\angle 7$?
p. ∠7 and ∠8 are alternate exterior angles, and ∠8 and ∠9 are complementary angles. If $m\angle 9 = 29°$, what is $m\angle 7$?	**m.** 
r. ∠4 and ∠5 are consecutive interior angles, and ∠5 and ∠6 are vertical angles. If $m\angle 6 = 59°$, what is $m\angle 4$?	**o.** ∠3 and ∠4 alternate interior angles, and ∠4 and ∠5 are supplementary angles. If $m\angle 5 = 66°$, what is $m\angle 3$?
s. ∠1 and ∠2 are supplementary angles, and ∠2 and ∠3 are corresponding angles. If $m\angle 1 = 37°$, what is $m\angle 3$?	**q.** ∠1 and ∠2 consecutive interior angles, and ∠2 and ∠3 are vertical angles. If $m\angle 3 = 48°$, what is $m\angle 1$?
u. 	**s.** 
w. ∠7 and ∠8 are complementary angles, and ∠8 and ∠9 are consecutive exterior angles. If $m\angle 7 = 34°$, what is $m\angle 9$?	**t.** ∠6 and ∠7 supplementary angles, and ∠7 and ∠8 are corresponding angles. If $m\angle 6 = 35°$, what is $m\angle 8$?
x. 	**v.** ∠4 and ∠5 alternate exterior angles, and ∠5 and ∠6 are complementary angles. If $m\angle 4 = 49°$, what is $m\angle 6$?
y. ∠6 and ∠7 are complementary angles, and ∠7 and ∠8 are consecutive exterior angles. If $m\angle 6 = 68°$, what is $m\angle 8$?	**w.** 

PARALLEL LINES & ANGLES

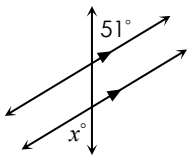
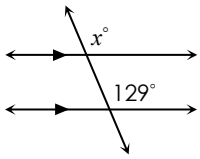
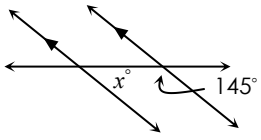
Cross-Number Puzzle

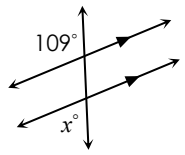
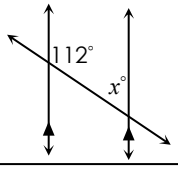
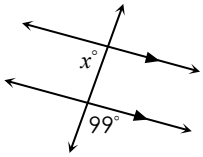
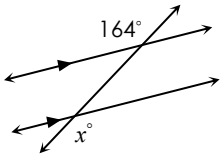
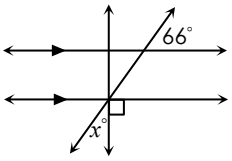
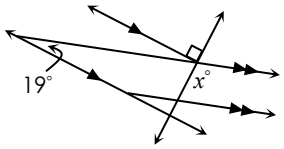
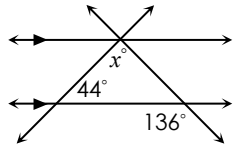
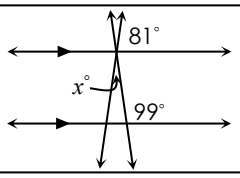
Name: _____

Date: _____ **Per:** _____

Directions: Find each angle measure given the diagram or description. Use your answers to complete the cross-number puzzle. *Assume all verbal problems are referring to parallel lines.

	a.	**b.**		**c.**	**d.**		
e.				**f.**			**g.**
		h.	**i.**		**j.**	**k.**	
l.	**m.**		**n.**	**o.**			
	p.	**q.**		**r.**			
s.							**t.**
		u.	**v.**		**w.**		
x.			**y.**				

ACROSS	DOWN
a. 	**a.** ∠1 and ∠2 are same-side interior angles. If $m\angle 1 = 124°$, what is $m\angle 2$?
c. ∠1 and ∠2 are alternate interior angles. If $m\angle 1 = 117°$, what is $m\angle 2$?	**b.** 
e. ∠4 and ∠5 are same-side exterior angles. If $m\angle 4 = 18°$, what is $m\angle 5$?	**c.** ∠7 and ∠8 are same-side exterior angles. If $m\angle 7 = 167°$, what is $m\angle 8$?
f. 	**d.** ∠2 and ∠3 are alternate exterior angles. If $m\angle 3 = 151°$, what is $m\angle 2$?

ACROSS	DOWN
h. ∠3 and ∠4 are corresponding angles. If $m\angle 3 = 96°$, what is $m\angle 4$?	**e.** ∠1 and ∠2 are same-side interior angles. If $m\angle 2 = 43°$, what is $m\angle 1$?
j. ∠1 and ∠2 are alternate interior angles, and ∠2 and ∠3 are supplementary angles. If $m\angle 3 = 61°$, what is $m\angle 1$?	**g.** ∠4 and ∠5 corresponding angles, and ∠5 and ∠6 are complementary angles. If $m\angle 6 = 61°$, what is $m\angle 4$?
l. 	**i.** 
n. 	**k.** ∠7 and ∠8 consecutive exterior angles, and ∠8 and ∠9 are vertical angles. If $m\angle 9 = 39°$, what is $m\angle 7$?
p. ∠7 and ∠8 are alternate exterior angles, and ∠8 and ∠9 are complementary angles. If $m\angle 9 = 29°$, what is $m\angle 7$?	**m.** 
r. ∠4 and ∠5 are same-side interior angles, and ∠5 and ∠6 are vertical angles. If $m\angle 6 = 59°$, what is $m\angle 4$?	**o.** ∠3 and ∠4 alternate interior angles, and ∠4 and ∠5 are supplementary angles. If $m\angle 5 = 66°$, what is $m\angle 3$?
s. ∠1 and ∠2 are supplementary angles, and ∠2 and ∠3 are corresponding angles. If $m\angle 1 = 37°$, what is $m\angle 3$?	**q.** ∠1 and ∠2 same-side interior angles, and ∠2 and ∠3 are vertical angles. If $m\angle 3 = 48°$, what is $m\angle 1$?
u. 	**s.** 
w. ∠7 and ∠8 are complementary angles, and ∠8 and ∠9 are same-side exterior angles. If $m\angle 7 = 34°$, what is $m\angle 9$?	**t.** ∠6 and ∠7 supplementary angles, and ∠7 and ∠8 are corresponding angles. If $m\angle 6 = 35°$, what is $m\angle 8$?
x. 	**v.** ∠4 and ∠5 alternate exterior angles, and ∠5 and ∠6 are complementary angles. If $m\angle 4 = 49°$, what is $m\angle 6$?
y. ∠6 and ∠7 are complementary angles, and ∠7 and ∠8 are same-side exterior angles. If $m\angle 6 = 68°$, what is $m\angle 8$?	**w.** 

PARALLEL LINES & ANGLES

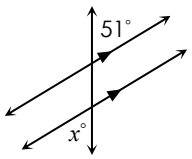
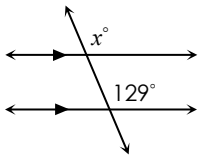
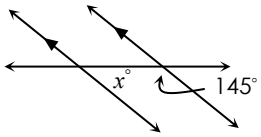
Cross-Number Puzzle

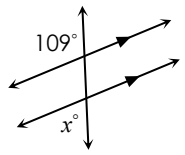
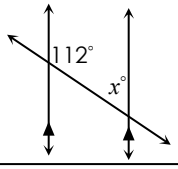
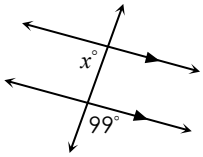
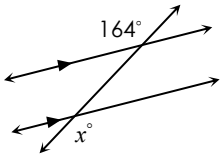
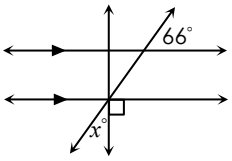
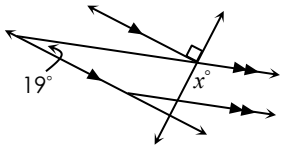
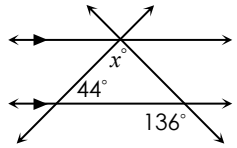
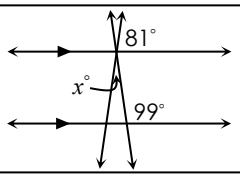
Name: ANSWER KEY

Date: _____ Per: _____

Directions: Find each angle measure given the diagram or description. Use your answers to complete the cross-number puzzle. *Assume all verbal problems are referring to parallel lines.

	a. 5	b. 1		c. 1	d. 1	7	
e. 1	6	2		f. 3	5		g. 2
3		h. 9	i. 6		j. 1	k. 1	9
l. 7	m. 1		n. 8	o. 1		4	
	p. 6	q. 1		r. 1	2	1	
s. 1	4	3		4			t. 1
0		u. 2	v. 4		w. 1	2	4
x. 9	2		y. 1	5	8		5

ACROSS	DOWN
a.  51°	**a.** ∠1 and ∠2 are consecutive interior angles. If $m\angle 1 = 124°$, what is $m\angle 2$? 56°
c. ∠1 and ∠2 are alternate interior angles. If $m\angle 1 = 117°$, what is $m\angle 2$? 117°	**b.**  129°
e. ∠4 and ∠5 are consecutive exterior angles. If $m\angle 4 = 18°$, what is $m\angle 5$? 162°	**c.** ∠7 and ∠8 are consecutive exterior angles. If $m\angle 7 = 167°$, what is $m\angle 8$? 13°
f.  35°	**d.** ∠2 and ∠3 are alternate exterior angles. If $m\angle 3 = 151°$, what is $m\angle 2$? 151°

ACROSS	DOWN
h. ∠3 and ∠4 are corresponding angles. If $m\angle 3 = 96°$, what is $m\angle 4$? 96°	**e.** ∠1 and ∠2 are consecutive interior angles. If $m\angle 2 = 43°$, what is $m\angle 1$? 137°
j. ∠1 and ∠2 are alternate interior angles, and ∠2 and ∠3 are supplementary angles. If $m\angle 3 = 61°$, what is $m\angle 1$? 119°	**g.** ∠4 and ∠5 corresponding angles, and ∠5 and ∠6 are complementary angles. If $m\angle 6 = 61°$, what is $m\angle 4$? 29°
l.  71°	**i.**  68°
n.  81°	**k.** ∠7 and ∠8 consecutive exterior angles, and ∠8 and ∠9 are vertical angles. If $m\angle 9 = 39°$, what is $m\angle 7$? 141°
p. ∠7 and ∠8 are alternate exterior angles, and ∠8 and ∠9 are complementary angles. If $m\angle 9 = 29°$, what is $m\angle 7$? 61°	**m.**  164°
r. ∠4 and ∠5 are consecutive interior angles, and ∠5 and ∠6 are vertical angles. If $m\angle 6 = 59°$, what is $m\angle 4$? 121°	**o.** ∠3 and ∠4 alternate interior angles, and ∠4 and ∠5 are supplementary angles. If $m\angle 5 = 66°$, what is $m\angle 3$? 114°
s. ∠1 and ∠2 are supplementary angles, and ∠2 and ∠3 are corresponding angles. If $m\angle 1 = 37°$, what is $m\angle 3$? 143°	**q.** ∠1 and ∠2 consecutive interior angles, and ∠2 and ∠3 are vertical angles. If $m\angle 3 = 48°$, what is $m\angle 1$? 132°
u.  24°	**s.**  109°
w. ∠7 and ∠8 are complementary angles, and ∠8 and ∠9 are consecutive exterior angles. If $m\angle 7 = 34°$, what is $m\angle 9$? 124°	**t.** ∠6 and ∠7 supplementary angles, and ∠7 and ∠8 are corresponding angles. If $m\angle 6 = 35°$, what is $m\angle 8$? 145°
x.  92°	**v.** ∠4 and ∠5 alternate exterior angles, and ∠5 and ∠6 are complementary angles. If $m\angle 4 = 49°$, what is $m\angle 6$? 41°
y. ∠6 and ∠7 are complementary angles, and ∠7 and ∠8 are consecutive exterior angles. If $m\angle 6 = 68°$, what is $m\angle 8$? 158°	**w.**  18°

PARALLEL LINES & ANGLES

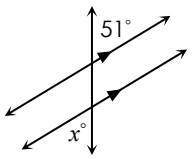
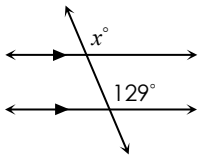
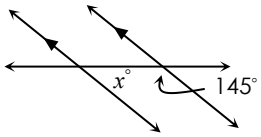
Cross-Number Puzzle

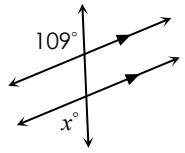
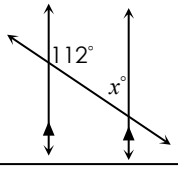
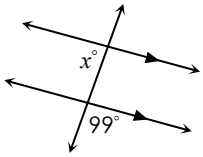
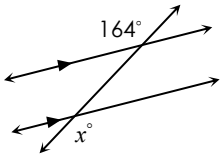
Name: ANSWER KEY

Date: _____ Per: _____

Directions: Find each angle measure given the diagram or description. Use your answers to complete the cross-number puzzle. *Assume all verbal problems are referring to parallel lines.

	a. 5	b. 1		c. 1	d. 1	7	
e. 1	6	2		f. 3	5		g. 2
3		h. 9	i. 6		j. 1	k. 1	9
l. 7	m. 1		n. 8	o. 1		4	
	p. 6	q. 1		r. 1	2	1	
s. 1	4	3		4			t. 1
0		u. 2	v. 4		w. 1	2	4
x. 9	2		y. 1	5	8		5

ACROSS	DOWN
a.  51°	**a.** ∠1 and ∠2 are same-side interior angles. If $m\angle 1 = 124°$, what is $m\angle 2$? 56°
c. ∠1 and ∠2 are alternate interior angles. If $m\angle 1 = 117°$, what is $m\angle 2$? 117°	**b.**  129°
e. ∠4 and ∠5 are same-side exterior angles. If $m\angle 4 = 18°$, what is $m\angle 5$? 162°	**c.** ∠7 and ∠8 are same-side exterior angles. If $m\angle 7 = 167°$, what is $m\angle 8$? 13°
f.  35°	**d.** ∠2 and ∠3 are alternate exterior angles. If $m\angle 3 = 151°$, what is $m\angle 2$? 151°

ACROSS	DOWN
h. ∠3 and ∠4 are corresponding angles. If $m\angle 3 = 96°$, what is $m\angle 4$? 96°	**e.** ∠1 and ∠2 are same-side interior angles. If $m\angle 2 = 43°$, what is $m\angle 1$? 137°
j. ∠1 and ∠2 are alternate interior angles, and ∠2 and ∠3 are supplementary angles. If $m\angle 3 = 61°$, what is $m\angle 1$? 119°	**g.** ∠4 and ∠5 corresponding angles, and ∠5 and ∠6 are complementary angles. If $m\angle 6 = 61°$, what is $m\angle 4$? 29°
l.  71°	**i.**  68°
n.  81°	**k.** ∠7 and ∠8 consecutive exterior angles, and ∠8 and ∠9 are vertical angles. If $m\angle 9 = 39°$, what is $m\angle 7$? 141°
p. ∠7 and ∠8 are alternate exterior angles, and ∠8 and ∠9 are complementary angles. If $m\angle 9 = 29°$, what is $m\angle 7$? 61°	**m.**  164°
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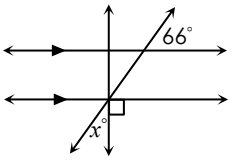
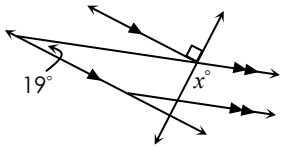
u.  24°	**s.**  109°
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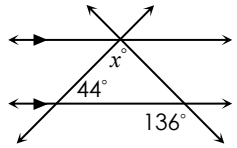
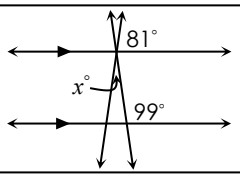
x.  92°	**v.** ∠4 and ∠5 alternate exterior angles, and ∠5 and ∠6 are complementary angles. If $m\angle 4 = 49°$, what is $m\angle 6$? 41°
y. ∠6 and ∠7 are complementary angles, and ∠7 and ∠8 are same-side exterior angles. If $m\angle 6 = 68°$, what is $m\angle 8$? 158°	**w.**  18°

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