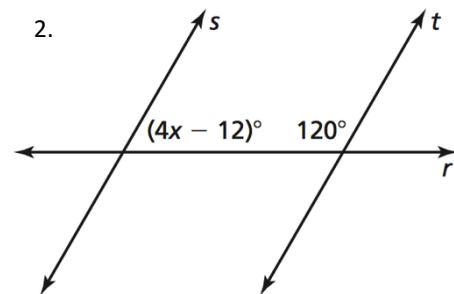
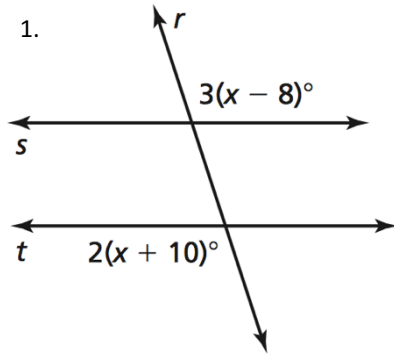
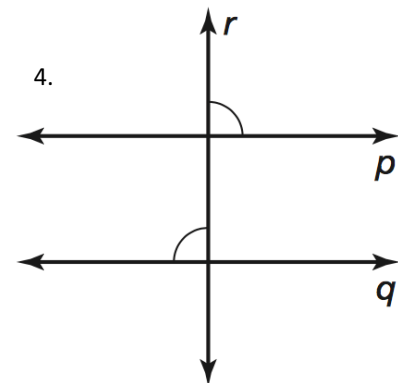
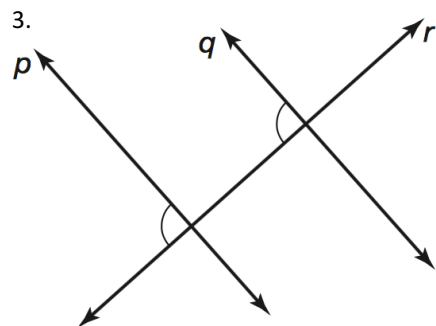


3.3 Proofs with Parallel Lines

In Exercises 1 and 2, find the value of x that makes s parallel to t . Explain your reasoning.



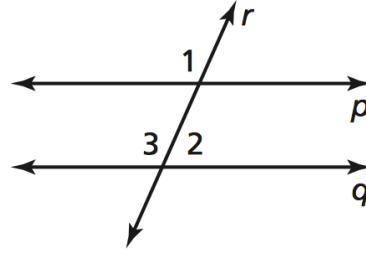
In Exercises 3 and 4, decide whether there is enough information to prove that p is parallel to q . If so, state the theorem you would use.



Name: _____ Date: _____ Per: _____

5. **Given:** $\angle 1$ and $\angle 2$ are supplementary

Prove: $p \parallel q$

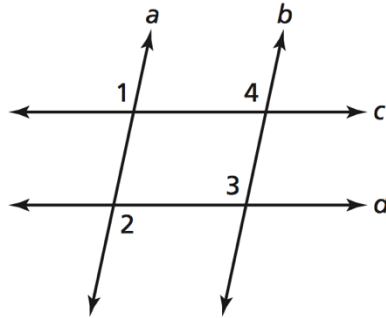


STATEMENT	REASONS
1.	1.
2. $\angle 2$ and $\angle 3$ are supplementary	2.
3. $\angle 1 \cong \angle 3$	3. Congruent Supplements Theorem
4.	4.

Given: $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$

6.

Prove: $\angle 1 \cong \angle 4$



STATEMENT	REASON
1.	1.
2. $c \parallel d$	2.
3. $a \parallel b$	3.
4. $\angle 3 \cong \angle 4$	4.
5.	5. Transitive Property of Angle Congruence

3.3 Puzzle Time

Why Did The Boy Throw His Clock Out The Window?

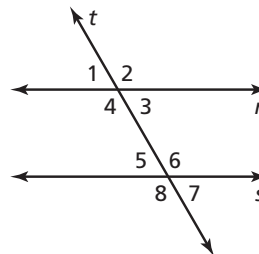
A	B	C	D	E	F
G					

Complete each exercise. Find the answer in the answer column. Write the word under the answer in the box containing the exercise letter.

11
TO
13
PLANE
77
BREAK
6
SEE
4
AN
5
BIRD
70
THE
12
HE

Using the diagram, find the value of x that makes r parallel to s .

- A. $m\angle 1 = 30^\circ$ and $m\angle 7 = (2x + 10)^\circ$
- B. $m\angle 4 = 135^\circ$ and $m\angle 5 = (4x - 3)^\circ$
- C. $m\angle 2 = 124^\circ$ and $m\angle 6 = (4x + 4)^\circ$
- D. $m\angle 3 = 24^\circ$ and $m\angle 5 = (2x + 2)^\circ$



Use the diagram to complete the proof. Use the chart to identify the reasons.

Given: $\angle 2 \cong \angle 8$ Prove: $r \parallel s$

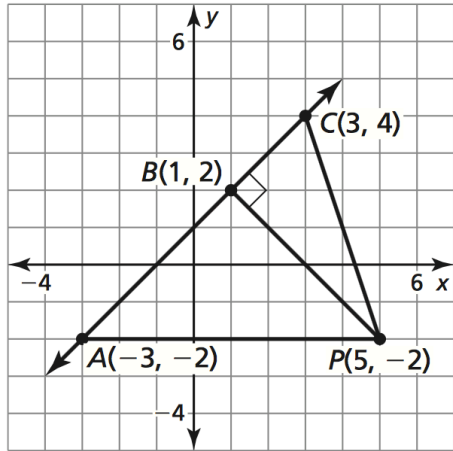
STATEMENTS	REASONS
$\angle 2 \cong \angle 8$	Given
$\angle 4 \cong \angle 2$	E.
$\angle 4 \cong \angle 8$	F.
$r \parallel s$	G.

1. Consecutive Interior Angles Converse (Theorem 3.8)
2. Alternate Interior Angles Converse (Theorem 3.6)
3. Transitive Property of Congruence
4. Transitive Property of Parallel Lines (Theorem 3.9)
5. Alternate Exterior Angles Converse (Theorem 3.7)
6. Vertical Angles Congruence Theorem (Theorem 2.6)
7. Corresponding Angles Converse (Theorem 3.5)

7
FLY
3
TIME
30
WANTED
1
TAKE
2
FOREVER
10
BECAUSE
$34\frac{1}{2}$
SOUND
9
HOLD

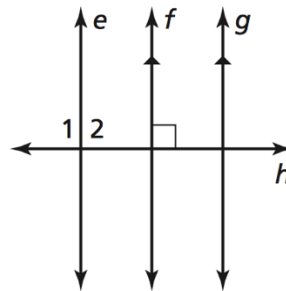
3.4 Proofs with Perpendicular Lines

1. Find the distance from point P to \overline{AB} .



2. **Given:** $\angle 1 \cong \angle 2$, $f \perp h$
and $f \parallel g$

Prove: $e \parallel g$



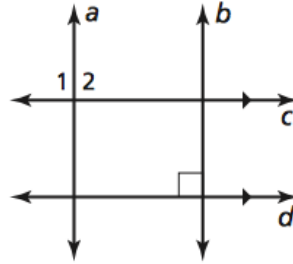
STATEMENTS	REASONS
1.	1.
2. $e \perp h$	2.
3. $e \parallel f$	3.
4.	4. Transitive Propert of Parallel Lines

3. Your friend claims that there is only one line that can be drawn perpendicular to \overline{PQ} . Is your friend correct? Explain your reasoning.



Name: _____ Date: _____ Per: _____

4. **Given:** $\angle 1 \cong \angle 2$,
 $c \parallel d$, and
 $b \perp d$



Prove: $a \parallel b$

STATEMENTS	REASONS
1.	1.
2. $a \perp c$	2.
3. $a \perp d$	3.
4.	4. Lines Perpendicular to a Transversal Theorem

3.4 Puzzle Time

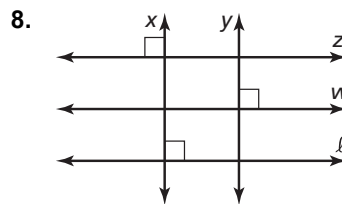
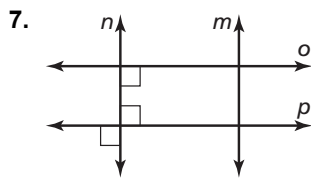
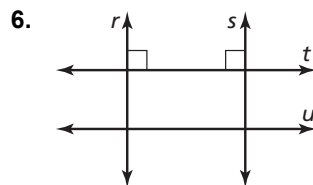
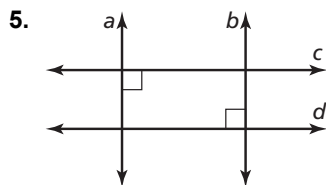
What Snake Is The Best Mathematician?

Write the letter of each answer in the box containing the exercise number.

Complete the sentence.

- The distance from a point to a line is the length of the _____ segment from the point to the line.
- If two lines intersect to form a(n) _____ of congruent angles, then the lines are perpendicular.
- In a plane, if a transversal is perpendicular to one of two _____ lines, then it is perpendicular to the other line.
- In a(n) _____, if two lines are perpendicular to the same line, then they are parallel to each other.

Determine which lines, if any, must be parallel.



Answers

- R. $r \parallel s$
- D. perpendicular
- I. vertical pair
- P. longest segment
- A. plane
- A. $t \parallel u$
- M. straight
- D. $n \parallel m$
- E. linear pair
- A. graph
- E. $a \parallel b$
- H. none
- V. $c \parallel d$
- D. $o \parallel p$
- A. 3.6
- T. parallel
- M. $x \parallel y$
- E. $z \parallel \ell$

3	5	8		4	1	7	2	6
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