

# Assignment

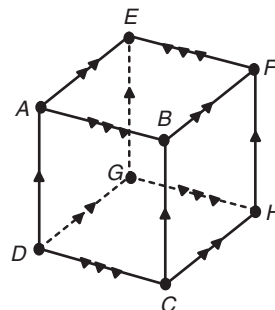
Assignment for Lesson 2.1

Name \_\_\_\_\_ Date \_\_\_\_\_

## Transversals and Lines Angles Formed by Transversals of Parallel and Non-Parallel Lines

1. Sketch a figure that shows three lines in the same plane whose intersection is a single point.

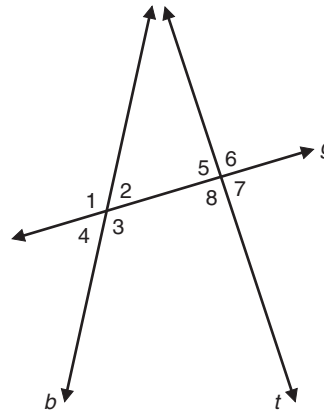
2. Use the figure to identify each of the following.
  - a. Two pairs of parallel segments



- b. Two pairs of skew segments

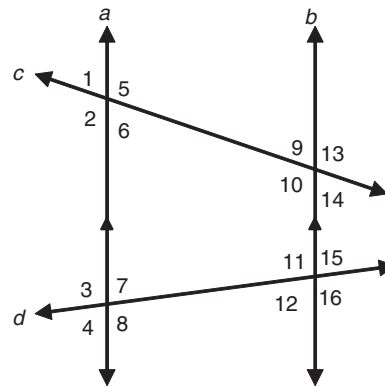
3. Use the figure to answer each question.

- a. Name the transversal.
- b. Identify all pairs of alternate interior angles.
- c. Identify all pairs of alternate exterior angles.
- d. Identify all pairs of same side interior angles.
- e. Identify all pairs of same side exterior angles.
- f. Identify all pairs of corresponding angles.



4. Use the figure to classify each pair of angles.

- a.  $\angle 1$  and  $\angle 14$
- b.  $\angle 6$  and  $\angle 8$
- c.  $\angle 12$  and  $\angle 15$
- d.  $\angle 10$  and  $\angle 11$



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5. Give an example of a real-life situation that involves skew lines or line segments.  
Draw a sketch to support your answer.

6. Give an example of a real-life situation that involves parallel lines or line segments.  
Draw a sketch to support your answer.

**2**

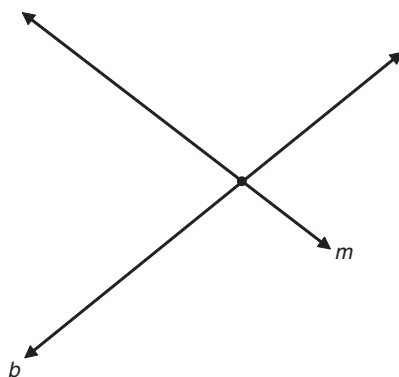


# Assignment

Name \_\_\_\_\_ Date \_\_\_\_\_

## Making Conjectures Conjectures about Angles Formed by Parallel Lines Cut by a Transversal

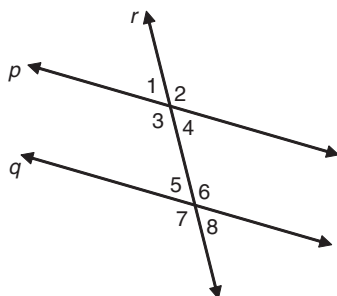
1. Construct line  $p$  parallel to line  $b$  such that line  $m$  is a transversal.



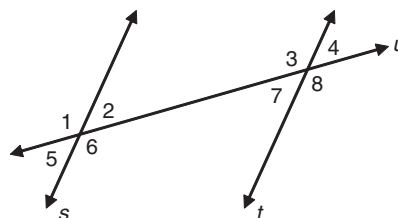
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Use the given information to determine the measures of angles 2 through 8.

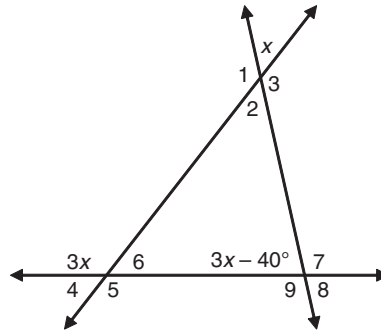
2.  $p \parallel q$  and  $m\angle 1 = 54^\circ$



3.  $s \parallel t$  and  $m\angle 1 = 137^\circ$



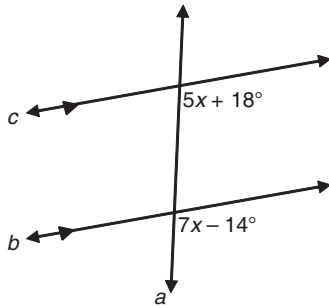
4. Write an expression for the measure of each numbered angle in the figure.



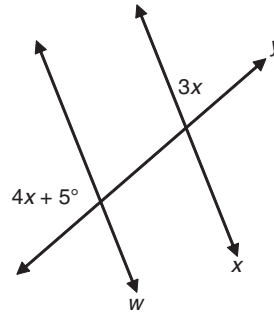
**2**

Solve for  $x$  in each figure.

5.



6.



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7. Suppose that two parallel lines are intersected by a transversal and all corresponding angles are supplementary. How is this possible? Sketch and label a figure to support your answer.



# Assignment

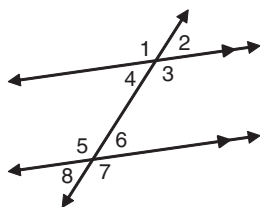
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## What's Your Proof?

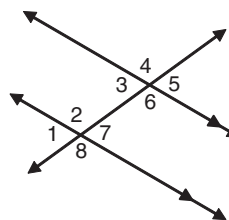
### Alternate Interior Angle Theorem, Alternate Exterior Angle Theorem, Same-Side Interior Angle Theorem, Same-Side Exterior Angle Theorem

Determine the relationship between the indicated angles and write a postulate or theorem that justifies your answer.

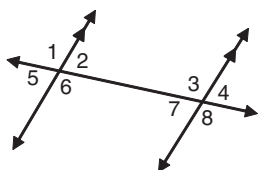
1. Angles 2 and 8



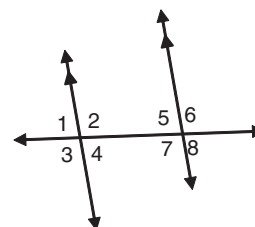
2. Angles 6 and 7



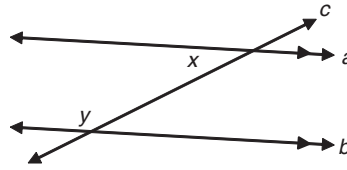
3. Angles 1 and 4



4. Angles 4 and 5

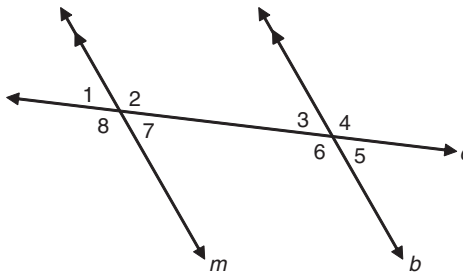


5. In the figure at the right, what postulate or theorem tells you that  $x + y = 180^\circ$ ?

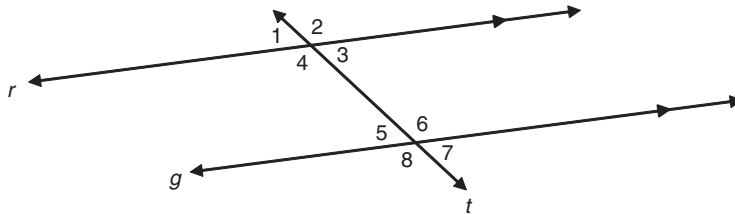


## 2

6. Suppose that the measure of angle 1 is 43 degrees. Determine the measures of angles 2 through 8.

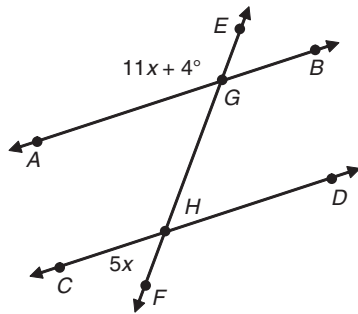


7. The following boxes show the parts of a flow chart proof of the Same-Side Interior Angle Theorem. Rearrange the boxes and draw arrows to connect the boxes in a logical sequence to prove the Same-Side Interior Angle Theorem.



Angles 1 and 4 are a linear pair. Linear Pair Postulate	$m\angle 1 = m\angle 5$ Definition of congruent angles	$r \parallel g$ Given
$\angle 5$ and $\angle 4$ are supplementary Definition of supplementary angles	$m\angle 5 + m\angle 4 = 180^\circ$ Substitution	$m\angle 1 + m\angle 4 = 180^\circ$ Definition of linear pair
		$\angle 1 \cong \angle 5$ Corresponding Angles Postulate

8. Use the figure to determine the measure of each indicated angle.



a.  $m\angle EGA$

b.  $m\angle CHF$

c.  $m\angle FHD$

d.  $m\angle EGB$

2

9. Suppose that two parallel lines are intersected by a transversal and all same side interior angles are congruent. How is this possible? Sketch and label a figure to support your answer.

# Assignment

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## A Reversed Condition Parallel Line Converse Theorems

1. Use the figure to write the postulate or theorem that justifies each statement.

a.  $m\angle 1 = m\angle 8$ , so  $a \parallel b$

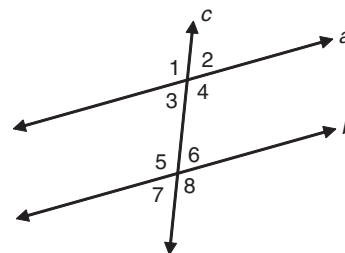
b.  $m\angle 4 + m\angle 6 = 180^\circ$ , so  $a \parallel b$

c.  $a \parallel b$ , so  $m\angle 3 = m\angle 7$

d.  $m\angle 2 + m\angle 8 = 180^\circ$ , so  $a \parallel b$

e.  $m\angle 4 = m\angle 5$ , so  $a \parallel b$

f.  $a \parallel b$ , so  $m\angle 3 + m\angle 5 = 180^\circ$



2

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2. Use the given information to determine the pair of lines that are parallel. Write the postulate or theorem that justifies your answer.

a.  $m\angle 4 = m\angle 5$

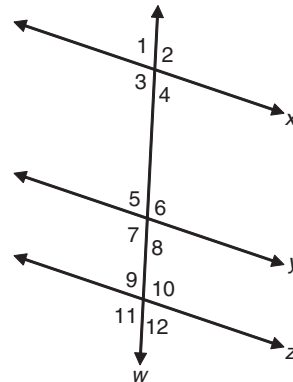
b.  $m\angle 2 + m\angle 12 = 180^\circ$

c.  $m\angle 7 = m\angle 11$

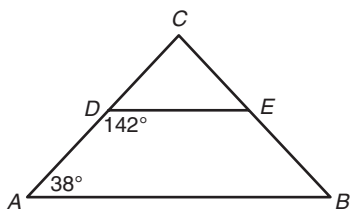
d.  $m\angle 8 + m\angle 10 = 180^\circ$

e.  $m\angle 1 + m\angle 7 = 180^\circ$

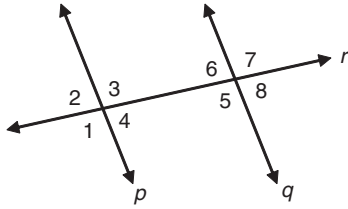
f.  $m\angle 2 = m\angle 11$



3. Given triangle  $ABC$  as shown, prove that segment  $AB$  is parallel to segment  $DE$ .



4. In the figure,  $m\angle 1 = (7x - 12)^\circ$ ,  $m\angle 3 = (6x + 4)^\circ$ , and  $m\angle 8 = (5x)^\circ$ . Show that line  $p$  is parallel to line  $q$ . Explain your reasoning.





# Assignment

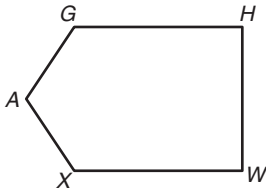
Assignment for Lesson 2.5

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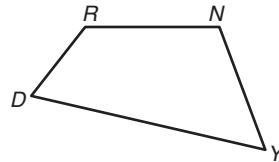
## Many Sides Naming Geometric Figures

Classify and name each polygon.

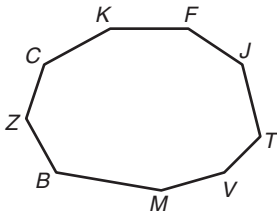
1.



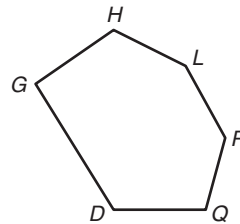
2.



3.



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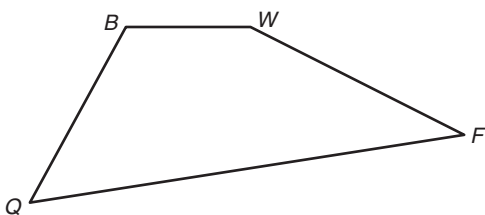


5. Draw an example of a regular pentagon named  $ABCDE$  that is convex.

6. Draw an example of an irregular octagon named  $STUVWXYZ$  that is concave.

2

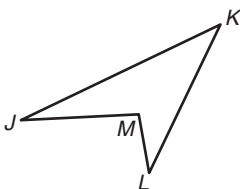
7. Use the quadrilateral to answer each question.



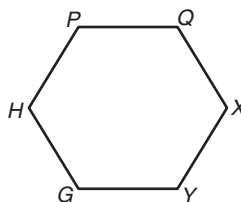
- a. Name two pairs of opposite sides.
- b. Name two pairs of opposite angles.
- c. Name two pairs of consecutive sides.
- d. Name two pairs of consecutive angles.

Draw and name all diagonals of the figure.

8.



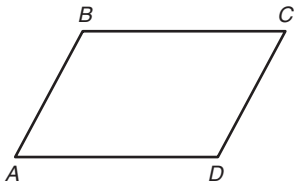
9.



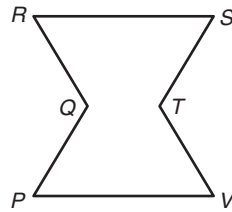
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Determine whether the figure has any reflex angles. If so, name them.

10.



11.





# Assignment

Assignment for Lesson 2.6

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## Quads and Tris Classifying Triangles and Quadrilaterals

Draw an example of each polygon described.

1. Right scalene triangle
2. Obtuse isosceles triangle
3. Rhombus
4. Kite

2

List all types of quadrilaterals that have the given characteristics.

5. All angles are congruent.
6. Opposite sides are congruent.
7. Two pairs of consecutive sides are congruent.

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**Determine whether each statement is true or false. Explain your answer and draw an example or counterexample, if possible.**

8. An obtuse triangle can be a scalene triangle.

9. All parallelograms are rectangles.

**2**

10. A right triangle can be isosceles.

11. Is it possible to draw an equilateral, obtuse triangle? If so, draw the triangle. If not, explain why not.

12. What type of quadrilateral is both a rhombus and a rectangle? Explain your reasoning.