Assignment

LESSON 2: Crisscross Applesauce

Write

Write the term that best completes each sentence.

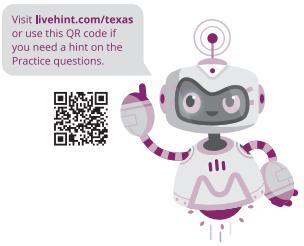
1. _____ are pairs of angles formed when a third line (transversal) intersects two other lines. These angles are on opposite sides of the transversal and are outside the other two lines.
2. A _____ is a line that intersects two or more lines.
3. _____ are pairs of angles formed when a third line (transversal) intersects two other lines. These angles are on the same side of the transversal and are outside the other two lines.
4. _____ are pairs of angles formed when a third line (transversal) intersects two other lines. These angles are on opposite sides of the transversal and are between the other two lines.
5. _____ are pairs of angles formed when a third line (transversal) intersects two other lines. These angles are on the same side of the transversal and are between the other two lines.

Remember

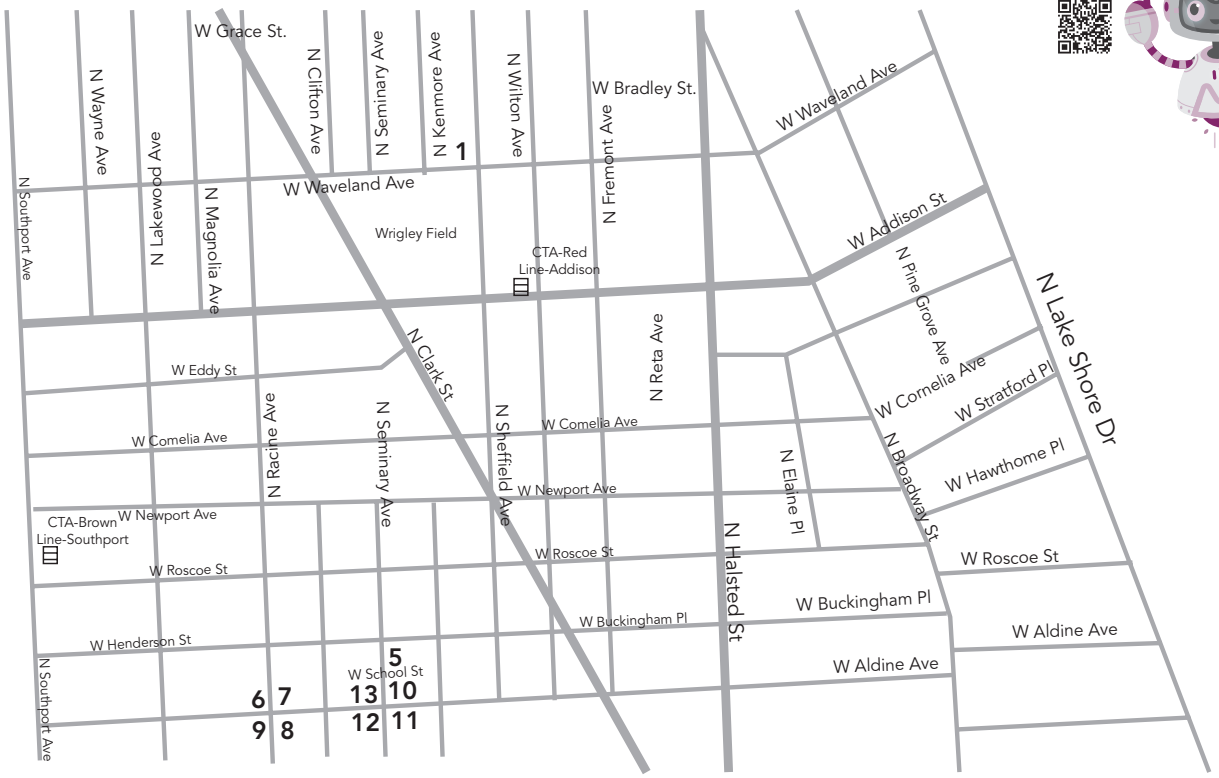
When two parallel lines are intersected by a transversal,

- corresponding angles are congruent,
- alternate interior angles are congruent,
- alternate exterior angles are congruent,
- same-side interior angles are supplementary, and
- same-side exterior angles are supplementary.

Practice



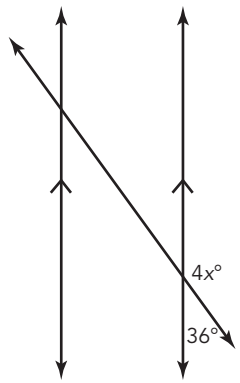
The figure shows part of a map of Chicago, Illinois.



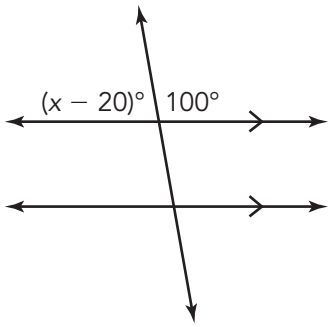
1. Use the numbered angles to identify a pair that illustrates each relationship.
   a. Name a pair of alternate interior angles.
   b. Name a pair of alternate exterior angles.
   c. Name a pair of corresponding angles.
   d. Name a pair of same-side interior angles.
   e. Name a pair of same-side exterior angles.
2. Look at the intersection of W. Waveland Ave. and N. Sheffield Ave. Notice the northwest corner is labeled ∠1. Label the other angles of this intersection in clockwise order Angles 2, 3, and 4. Next, label the angles created by the intersection of W. Addison St. and N. Sheffield Ave. Angles 14, 15, 16, and 17 clockwise, starting at the northwest corner.
   a. Determine the type of angle pair for ∠1 and ∠14.
   b. Determine the type of angle pair for ∠3 and ∠15.
   c. Determine the type of angle pair for ∠1 and ∠16.
   d. Determine the type of angle pair for ∠1 and ∠17.
   e. Determine the type of angle pair for ∠3 and ∠14.

3. Determine the measure of all the angles in each diagram.

a.

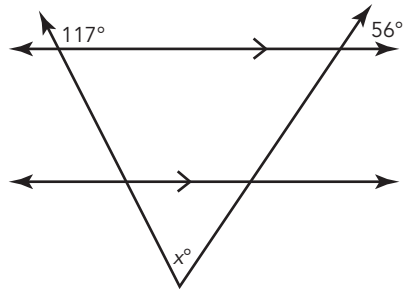


b.



4. Solve for x. Show all your work.

a.



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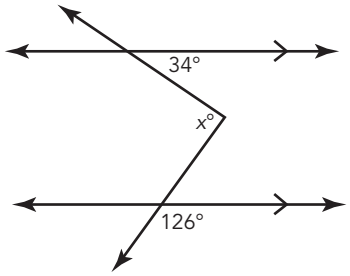
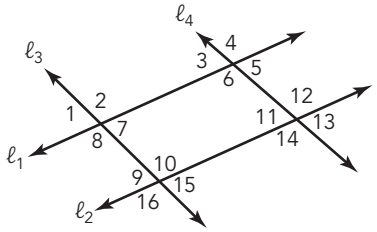


Stretch

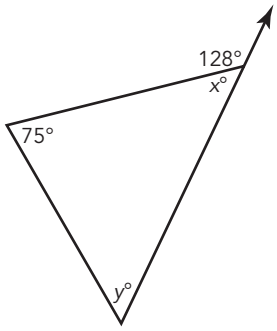
Given: $\ell_1 \parallel \ell_2$ and $\ell_3 \parallel \ell_4$.



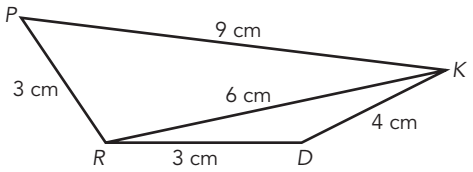
1. Explain why every angle in the diagram is congruent to ∠6 or ∠7.
2. What can you conclude about the sum of the measures of ∠6, ∠7, ∠10, and ∠11? Explain your reasoning.
3. Use what you learned in this lesson to explain what you know about the angles in any parallelogram.

Review

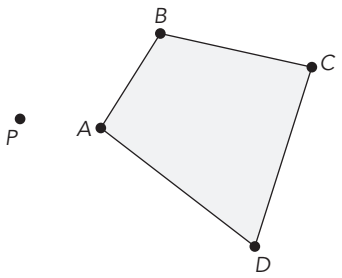
1. Determine the unknown angle measures.



2. Use the diagram to answer each question.
   a. Without using a protractor, determine which angle has the greatest measure in $\triangle KDR$. Explain your reasoning.
   b. Without using a protractor, determine which angle has the greatest measure in $\triangle PRK$. Explain your reasoning.



3. Triangle *ABC*, with coordinates *A* (−2, 5), *B* (0, 7), and *C* (1, 3), is dilated by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin. Determine the coordinates of Triangle *A'B'C'*.
4. Dilate Quadrilateral *ABCD* by a scale factor of 2, using point *P* as the center of dilation.



5. Factor the expression $1.5x + 6$.
6. Expand the expression $4(\frac{3}{2}x + 5)$.