3.1 Exercises

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Help with Homework
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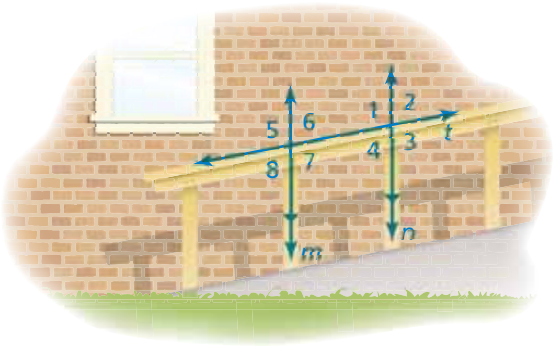
Vocabulary and Concept Check

1. **VOCABULARY** Draw two parallel lines and a transversal. Label a pair of corresponding angles.

2. **WHICH ONE DOESN'T BELONG?** Which statement does *not* belong with the other three? Explain your reasoning. Refer to the figure for Exercises 3–6.

The measure of $\angle 2$	The measure of $\angle 5$
The measure of $\angle 6$	The measure of $\angle 8$

Practice and Problem Solving



In Exercises 3–6, use the figure.

3. Identify the parallel lines.
4. Identify the transversal.
5. How many angles are formed by the transversal?
6. Which of the angles are congruent?

Use the figure to find the measures of the numbered angles.

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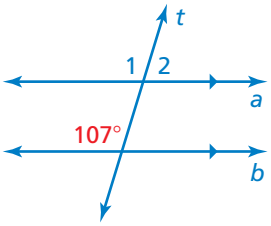

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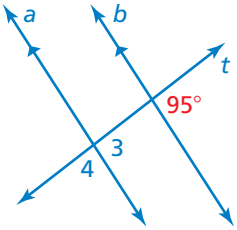

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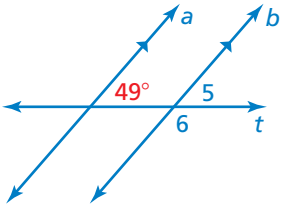
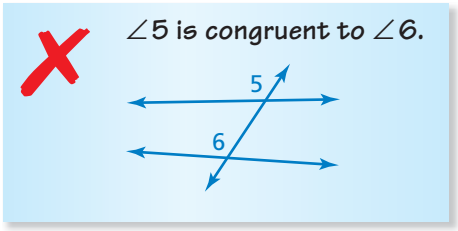


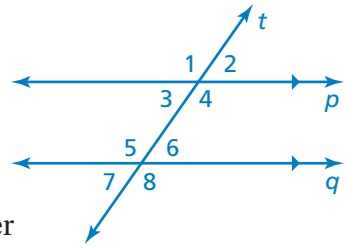
10. **ERROR ANALYSIS** Describe and correct the error in describing the relationship between the angles.



11. **PARKING** The painted lines that separate parking spaces are parallel. The measure of $\angle 1$ is 60°. What is the measure of $\angle 2$? Explain.

12. **OPEN-ENDED** Describe two real-life situations that use parallel lines.

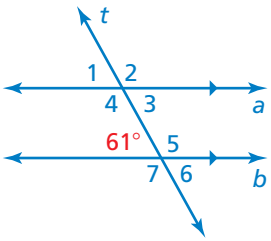
13. **PROJECT** Trace line p and line t on a piece of paper. Label $\angle 1$. Move the paper so that $\angle 1$ aligns with $\angle 8$. Describe the transformations that you used to show that $\angle 1$ is congruent to $\angle 8$.



14. **REASONING** Two horizontal lines are cut by a transversal. What is the least number of angle measures you need to know in order to find the measure of every angle? Explain your reasoning.

Use the figure to find the measures of the numbered angles. Explain your reasoning.

15.



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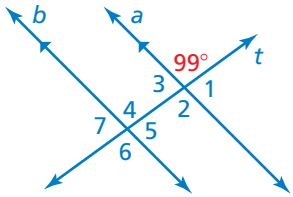

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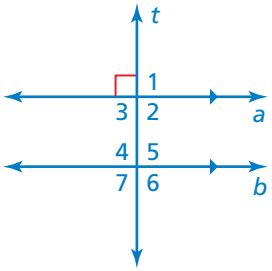
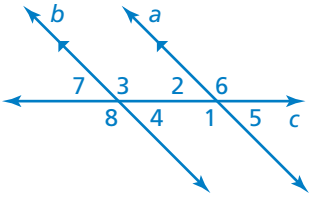


Complete the statement. Explain your reasoning.

18. If the measure of $\angle 1 = 124°$, then the measure of $\angle 4 =$ ____.

19. If the measure of $\angle 2 = 48°$, then the measure of $\angle 3 =$ ____.

20. If the measure of $\angle 4 = 55°$, then the measure of $\angle 2 =$ ____.

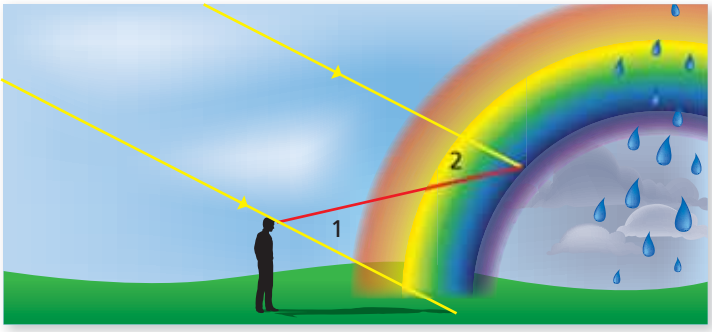


21. If the measure of $\angle 6 = 120°$, then the measure of $\angle 8 =$ ____.

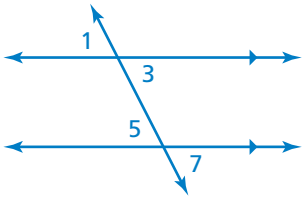
22. If the measure of $\angle 7 = 50.5°$, then the measure of $\angle 6 =$ ____.

23. If the measure of $\angle 3 = 118.7°$, then the measure of $\angle 2 =$ ____.

24. **RAINBOW** A rainbow forms when sunlight reflects off raindrops at different angles. For blue light, the measure of $\angle 2$ is 40°. What is the measure of $\angle 1$?



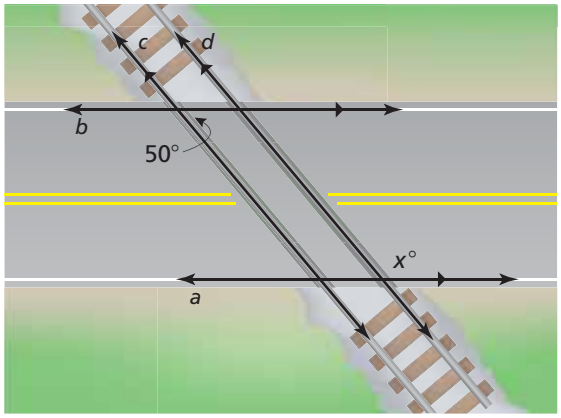
25. **REASONING** When a transversal is perpendicular to two parallel lines, all the angles formed measure 90°. Explain why.



26. **LOGIC** Describe two ways you can show that $\angle 1$ is congruent to $\angle 7$.

CRITICAL THINKING **Find the value of x.**

27.



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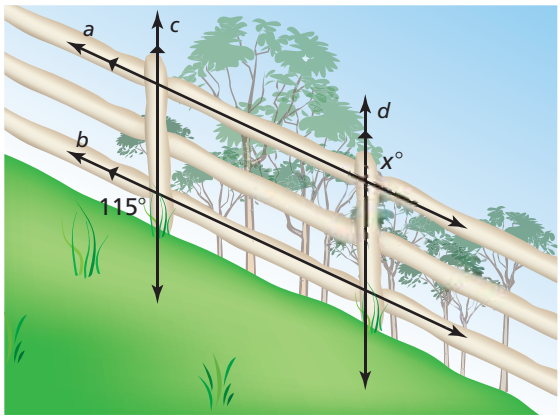
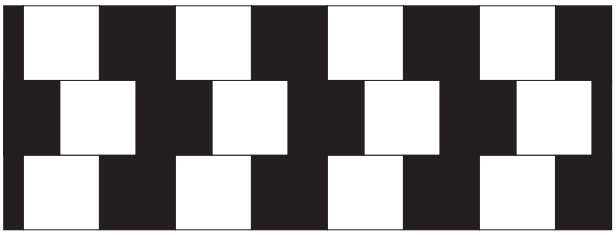
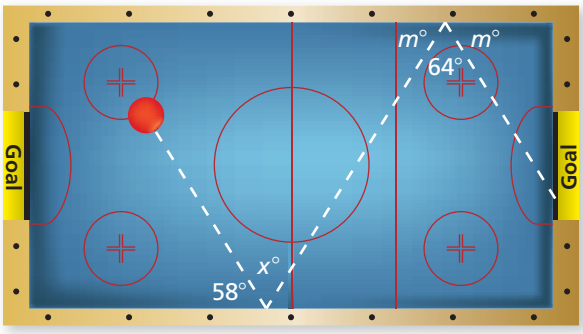


29. **OPTICAL ILLUSION** Refer to the figure.

a. Do the horizontal lines appear to be parallel? Explain.

b. Draw your own optical illusion using parallel lines.





30. Geometry The figure shows the angles used to make a double bank shot in an air hockey game.

a. Find the value of x.

b. Can you still get the red puck in the goal when x is increased by a little? by a lot? Explain.

Fair Game Review What you learned in previous grades & lessons

Evaluate the expression. *(Skills Review Handbook)*

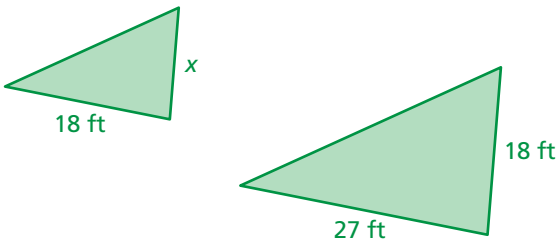
31. $4 + 3^2$

32. $5(2)^2 - 6$

33. $11 + (-7)^2 - 9$

34. $8 \div 2^2 + 1$

35. **MULTIPLE CHOICE** The triangles are similar. What length does x represent? *(Section 2.5)*



(A) 2 ft (B) 12 ft

(C) 15 ft (D) 27 ft