Name _____ Date _____

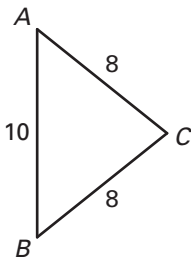
LESSON 5.5

Practice C

For use with the lesson "Use Inequalities in a Triangle"

Name the smallest and largest angles of the triangle.

1.



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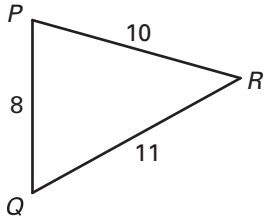

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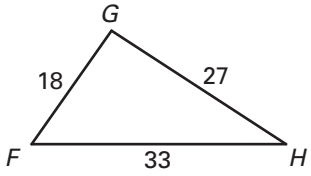
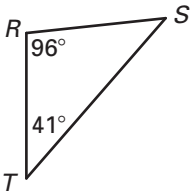


Name the shortest and longest sides of the triangle.

4.



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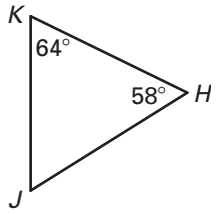

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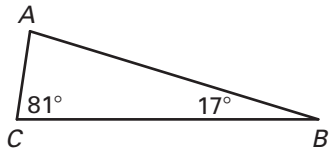
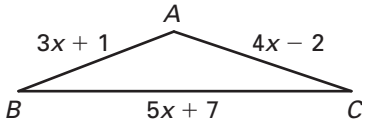


Solve the inequality *AB* + *AC* > *BC* for *x*.

7.



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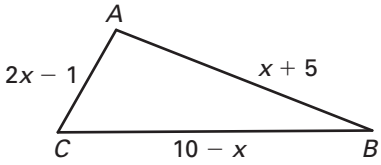
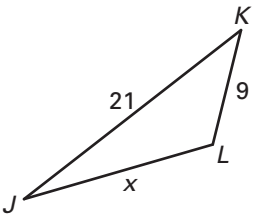
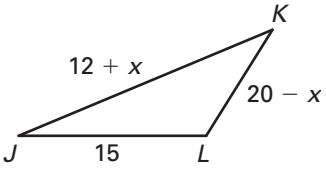


In Exercises 9 and 10, *m*∠*J* < *m*∠*K* < *m*∠*L*. Find all possible values of *x*.

9.



10.



11. A triangle has sides that are 32, 48, and 61 units long and angles of 31°, 52°, and 97°. Sketch and label a diagram with the longest side on the top and the smallest angle at the right.

Name _____ Date _____

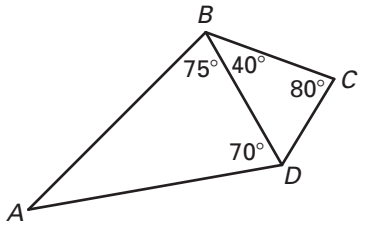
LESSON 5.5

Practice C *continued*

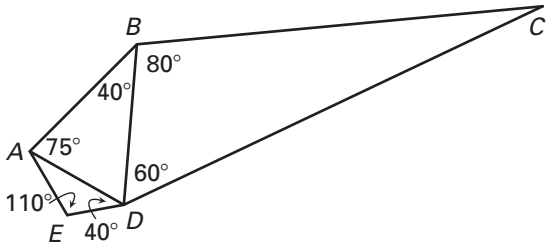
For use with the lesson "Use Inequalities in a Triangle"

List the sides in order from shortest to longest.

12.



13.



Describe the possible lengths of the third side of the triangle given the lengths of the other two sides.

14. 6 ft, 6 ft

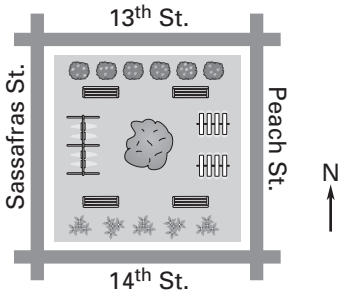
15. 9 in., 5 in.

16. 11 yd, 6 yd

17. 7 ft, 24 in.

18. **Playground** You are asked to fence in a triangular playground. Two sides of the playground have lengths of 100 feet and 200 feet. What is the maximum total length of fence you could possibly need?

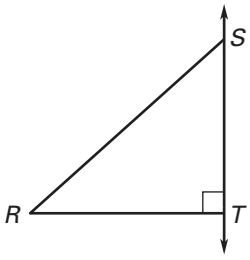
19. **Shortcut** You are walking your dog north on the sidewalk of Peach Street. When you reach 14th Street, you cut across the park to the corner of 13th Street and Sassafras Street. Explain why taking this route is shorter than continuing to walk to 13th Street and then to Sassafras Street.



20. **Proof** Write a paragraph proof.

GIVEN: $\overline{RT} \perp \overline{TS}$

PROVE: $RS > RT$



Lesson 5.5 Use Inequalities in a Triangle, continued

Practice Level C

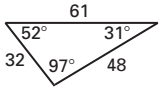
1. smallest, $\angle A$ and $\angle B$; largest, $\angle C$

2. smallest, $\angle R$; largest, $\angle P$ **3.** smallest, $\angle H$; largest, $\angle G$ **4.** shortest, $\overline{RS}$; longest, $\overline{ST}$

5. shortest, $\overline{KH}$ and $\overline{KJ}$; longest, $\overline{JH}$

6. shortest, $\overline{AC}$; longest, $\overline{CB}$ **7.** $x > 4$ **8.** $x > \frac{3}{2}$

9. $12 < x < 21$ **10.** $5 < x < 11.5$

11. 

12. $\overline{CD}$, $\overline{BC}$, $\overline{BD}$, $\overline{AB}$, $\overline{AD}$

13. $\overline{DE}$, $\overline{AE}$, $\overline{AD}$, $\overline{AB}$, $\overline{BD}$, $\overline{BC}$, $\overline{CD}$

14. $0 \text{ ft} < x < 12 \text{ ft}$ **15.** $4 \text{ in.} < x < 14 \text{ in.}$

16. $5 \text{ yd} < x < 17 \text{ yd}$ **17.** $60 \text{ in.} < x < 108 \text{ in.}$

18. 600 feet **19.** It is shorter to cut across the park because the sum of the lengths of the two sidewalks is greater than the length of the diagonal across the park. **20.** $\overline{RT} \perp \overline{TS}$, so $\triangle RTS$ is a right triangle. The largest angle in a right triangle is the right angle, so $m\angle RTS > m\angle RST$, so $RS > RT$. (If one angle of a triangle is larger than another angle, then the side opposite the larger angle is longer than the side opposite the smaller angle.)