Name _____ Date _____

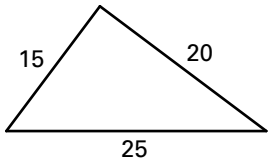
LESSON 7.2

Practice A

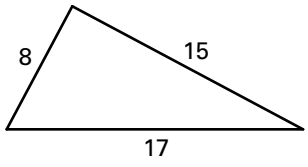
For use with pages 458–465

Tell whether the triangle is a right triangle.

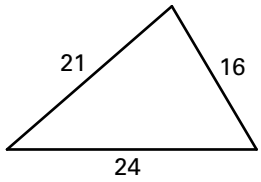
1.



2.



3.



Decide whether the numbers can represent the side lengths of a triangle. If they can, classify the triangle as *acute*, *right*, or *obtuse*.

4. 6, 8, 10

5. 5, 7, 9

6. 8, 9, 10

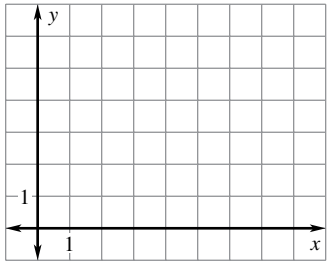
7. 10, 12, 30

8. 16, 30, 34

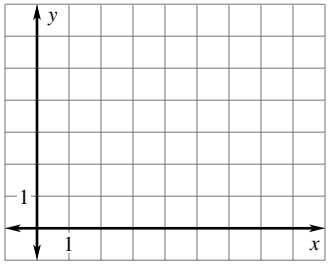
9. 18, 34, 45

Graph points *A*, *B*, and *C*. Connect the points to form △*ABC*. Decide whether △*ABC* is *acute*, *right*, or *obtuse*.

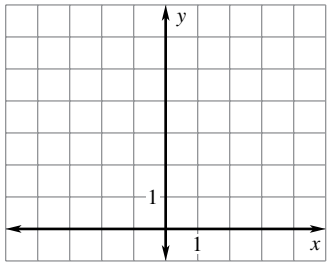
10. $A(1, 5)$, $B(1, 1)$, $C(6, 1)$



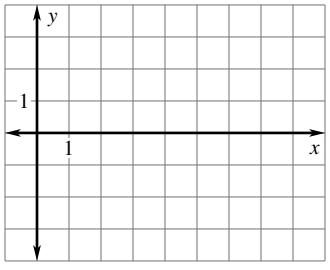
11. $A(2, 4)$, $B(4, 1)$, $C(7, 1)$



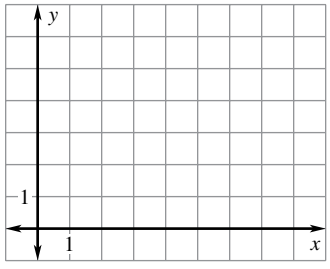
12. $A(-2, 1)$, $B(2, 1)$, $C(0, 5)$



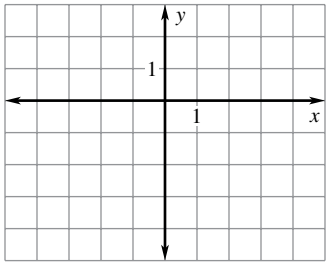
13. $A(3, -2)$, $B(1, 0)$, $C(7, 2)$



14. $A(0, 2)$, $B(3, 3)$, $C(5, 1)$



15. $A(-1, 1)$, $B(-2, -4)$, $C(2, -3)$



Name _____ Date _____

LESSON 7.2

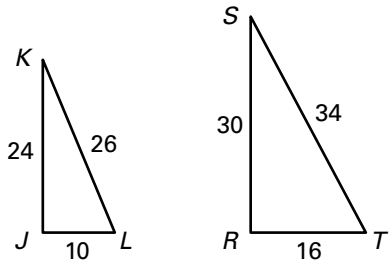
Practice A *continued*

For use with pages 458–465

In Exercises 16 and 17, copy and complete the statement with <, >, or =, if possible. If it is not possible, *explain* why.

16. $m\angle J$ __?__ $m\angle R$

17. $m\angle K + m\angle L$ __?__ $m\angle S + m\angle T$



18. Multiple Choice What type of triangle has side lengths of 4, 4, and 4?

A. Acute scalene **B.** Acute equilateral

C. Obtuse scalene **D.** Obtuse isosceles

19. Multiple Choice What type of triangle has two of the three angles with measurements of 24° and 105°?

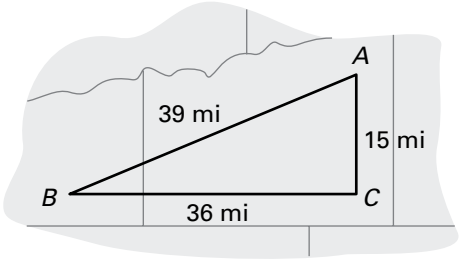
A. Acute **B.** Right **C.** Obtuse **D.** None

In Exercises 20 and 21, use the diagram and the following information.

Maps The distances between three towns are given in the diagram.

20. Is the triangle ($\triangle ABC$) formed by the three towns a right triangle?

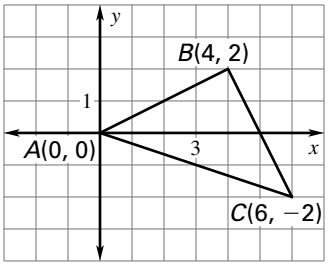
21. Town B is directly west of town C. Is town A directly north of town C?



In Exercises 22 and 23, you will use two different methods for determining whether $\triangle ABC$ is a right triangle.

22. Method 1 Find the slope of $\overline{AB}$ and the slope of $\overline{BC}$. What do the slopes tell you about $\angle ABC$? Is $\triangle ABC$ a right triangle?

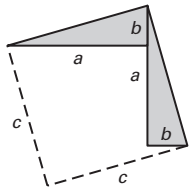
23. Method 2 Use the Distance Formula and the Converse of the Pythagorean Theorem to determine whether $\triangle ABC$ is a right triangle.



Lesson 7.1, continued

c. $P(\text{triangle}) = 27x$; $P(\text{square}) = 36x$; $P(\text{pentagon}) = 45x$; $P(\text{hexagon}) = 54x$
hexagon, *Sample answer:* the hexagon's perimeter equation has the greatest slope.

5.



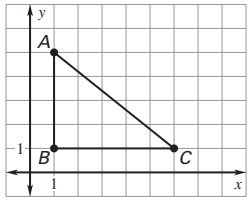
Sample answer: Area of two squares is $a^2 + b^2$. The two cuts must be of equal length c. From the diagram, the rearranged shape is a square with area c^2.
So, $a^2 + b^2 = c^2$.

Lesson 7.2

Practice Level A

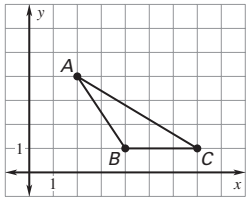
1. yes **2.** yes **3.** no **4.** yes; right
5. yes; obtuse **6.** yes; acute **7.** no
8. yes; right **9.** yes; obtuse

10.



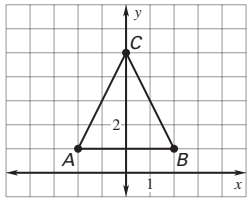
right

11.



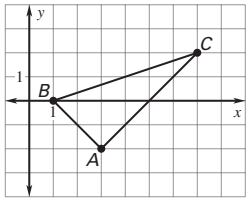
obtuse

12.



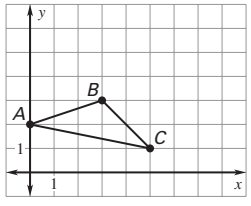
acute

13.



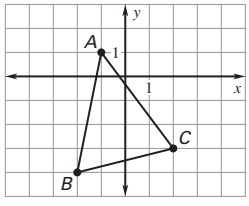
right

14.



obtuse

15.



acute

16. $m\angle J = m\angle R$
17. $m\angle K + m\angle L = m\angle S + m\angle T$
18. B **19.** C **20.** yes **21.** yes
22. $\frac{1}{2}$; -2; Because $\left(\frac{1}{2}\right)(-2) = -1$, $\overline{AB} \perp \overline{BC}$.

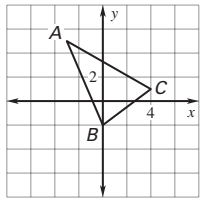
So $\angle ABC$ is a right angle. Therefore $\triangle ABC$ is a right triangle by the definition of a right triangle.

23. $(AB)^2 + (BC)^2 = 20 + 20 = 40 = (AC)^2$, so by the Converse of the Pythagorean Theorem, $\triangle ABC$ is a right triangle.

Practice Level B

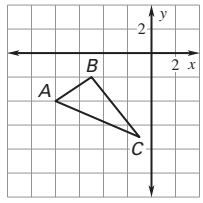
1. yes; right **2.** yes; obtuse **3.** yes; acute
4. yes; right **5.** yes; obtuse **6.** yes; right

7.



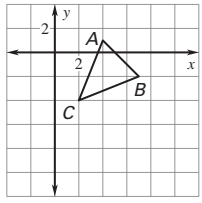
acute

8.



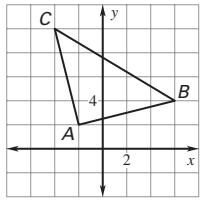
obtuse

9.



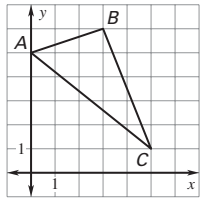
acute

10.



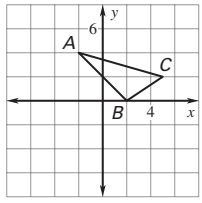
right

11.



obtuse

12.



obtuse

13. $>$ **14.** $<$ **15.** $x = 4\sqrt{2}$ **16.** $6 < x < 6\sqrt{2}$
17. $x > 3\sqrt{2}$ **18.** $6 < x < 9$ **19.** $x = 32$
20. $x > 18$ **21.** 39 ft **22.** about 94 rows
23. $\frac{3}{4}$; $-\frac{4}{3}$; Because $\left(\frac{3}{4}\right)\left(-\frac{4}{3}\right) = -1$, $\overline{AC} \perp \overline{BC}$.

So $\angle ACB$ is a right angle. Therefore $\triangle ABC$ is a right triangle by the definition of a right triangle.

24. $(AC)^2 + (BC)^2 = 25 + 25 = 50 = (AB)^2$, so by the Converse of the Pythagorean Theorem, $\triangle ABC$ is a right triangle.

25. Start by finding the slopes to see if the triangle is a right triangle. If no two slopes lead to perpendicular line segments, then find the distances to determine whether the triangle is acute or obtuse.

Practice Level C

1. no **2.** yes; obtuse **3.** yes; right **4.** yes; acute
5. yes; right **6.** yes; obtuse