Name ______________________________ Date ______________

LESSON 7.2

Practice B

For use with pages 458–465

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

1. 5, 12, 13

2. $\sqrt{8}$, 4, 6

3. 20, 21, 28

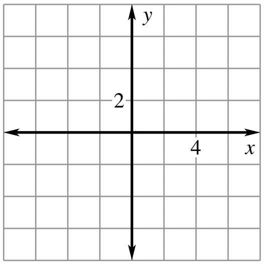
4. 15, 36, 39

5. $\sqrt{13}$, 10, 12

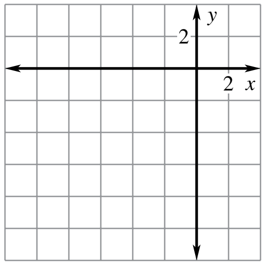
6. 14, 48, 50

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

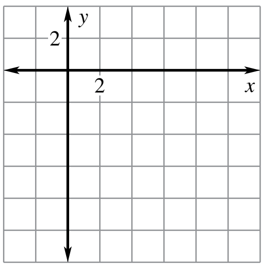
7. $A(-3, 5)$, $B(0, -2)$, $C(4, 1)$



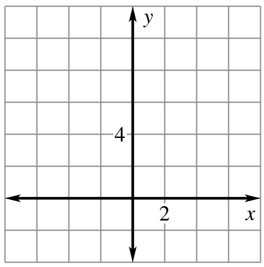
8. $A(-8, -4)$, $B(-5, -2)$, $C(-1, -7)$



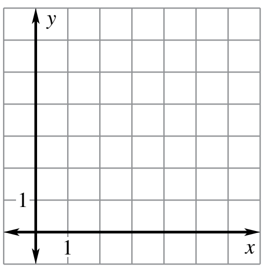
9. $A(4, 1)$, $B(7, -2)$, $C(2, -4)$



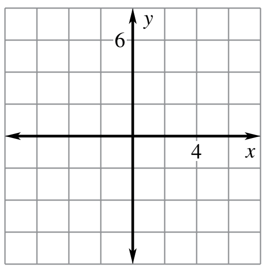
10. $A(-2, 2)$, $B(6, 4)$, $C(-4, 10)$



11. $A(0, 5)$, $B(3, 6)$, $C(5, 1)$



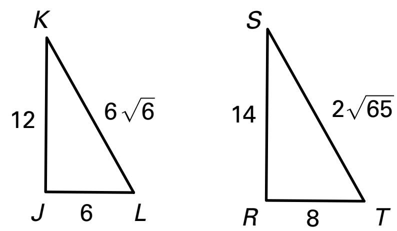
12. $A(-2, 4)$, $B(2, 0)$, $C(5, 2)$



In Exercises 13 and 14, copy and complete the statement with <, >, or = , if possible. If it is not possible, *explain* why.

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

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



Name ______________________ Date ____________

LESSON 7.2

Practice B *continued*

For use with pages 458–465

The sides and classification of a triangle are given below. The length of the longest side is the integer given. What value(s) of *x* make the triangle?

15. $x, x, 8$; right

16. $x, x, 12$; obtuse

17. $x, x, 6$; acute

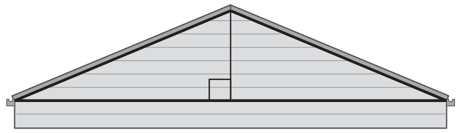
18. $x, x + 3, 15$; obtuse

19. $x, x - 8, 40$; right

20. $x + 2, x + 3, 29$; acute

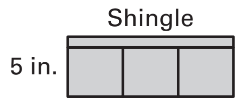
In Exercises 21 and 22, use the diagram and the following information.

Roof The roof shown in the diagram at the right is shown from the front of the house. The slope of the roof is $\frac{5}{12}$. The height of the roof is 15 feet.



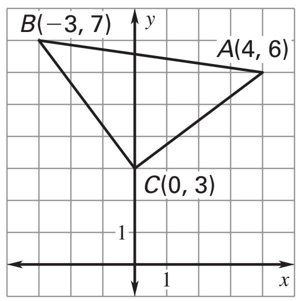
21. What is the length from gutter to peak of the roof?

22. A row of shingles is 5 inches high. How many rows of shingles are needed for one side of the roof?



In Exercises 23–25, you will use two different methods for determining whether △*ABC* is a right triangle.

23. Method 1 Find the slope of $\overline{AC}$ and the slope of $\overline{BC}$. What do the slopes tell you about $\angle ACB$? Is $\triangle ABC$ a right triangle? How do you know?



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

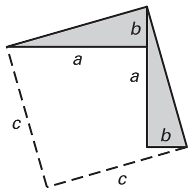
25. Compare Which method would you use to determine whether a given triangle is right, acute, or obtuse? *Explain*.

LESSON 7.2

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

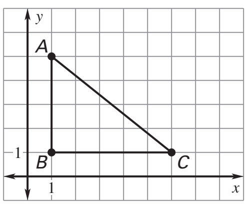
Practice Level A

1. yes **2.** yes **3.** no **4.** yes; right

5. yes; obtuse **6.** yes; acute **7.** no

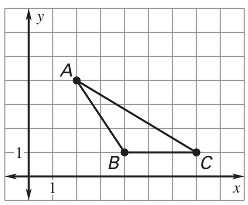
8. yes; right **9.** yes; obtuse

10.



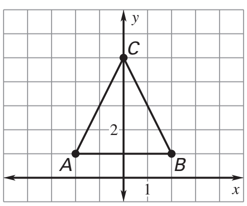
right

11.



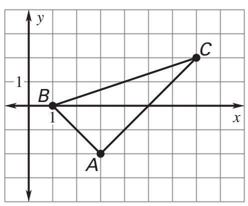
obtuse

12.



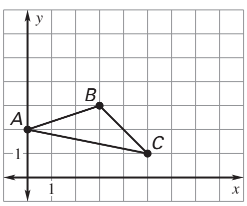
acute

13.



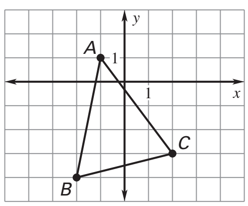
right

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.

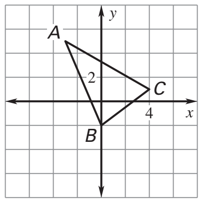
23. $(AB)^2 + (BC)^2 = 20 + 20 = 40 = (AC)^2$, so by the Converse of the Pythagorean Theorem, $\triangle ABC$ is a right triangle.

Practice Level B

1. yes; right **2.** yes; obtuse **3.** yes; acute

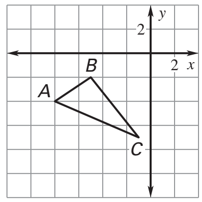
4. yes; right **5.** yes; obtuse **6.** yes; right

7.



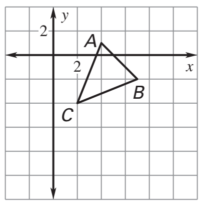
acute

8.



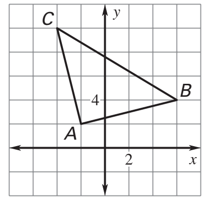
obtuse

9.



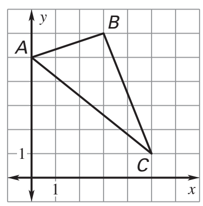
acute

10.



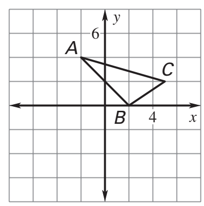
right

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