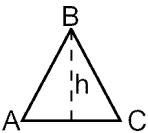# Unit 6: Pythagorean Theorem

Name: _____   **Date:** _____

1. If two legs of a right triangle are 9 and 11, the hypotenuse is

   A. 20   B. 2   C. 40   D. $\sqrt{202}$

2. If the lengths of the legs of a right triangle are 5 and 12, what is the length of the hypotenuse?

   A. $\sqrt{119}$ B. $\sqrt{17}$ C. 17   D. 13

3. The length of the hypotenuse of a right triangle is 13 centimeters and the length of one of the legs is 12 centimeters. Find the number of centimeters in the length of the second leg.

4. If the length of one of the legs of a right triangle is 10 and the length of the other leg is 24, what is the length of the hypotenuse?

   A. 13   B. 17   C. 26   D. 169

5. In a right triangle, if the length of the hypotenuse is 15 and the length of one leg is 12, find the length of the other leg.

6. What is the length of the hypotenuse of a right triangle with legs of lengths 7 and 8?

   A. 9   B. 15   C. $\sqrt{15}$ D. $\sqrt{113}$

7. Triangle *ABC* is a right triangle with legs that measure 7 and 8. The length of the hypotenuse is

   A. $\sqrt{15}$ B. $\sqrt{113}$ C. 9   D. 15

8. If the length of one leg of a right triangle is 5 and the length of the hypotenuse is 6, then the length of the other leg is

   A. $\sqrt{61}$ B. $\sqrt{11}$ C. 3   D. 4

9. If the legs of a right triangle are 4 and 7, the length of the hypotenuse is

   A. $\sqrt{3}$ B. $\sqrt{33}$ C. $\sqrt{11}$ D. $\sqrt{65}$

10. In the accompanying diagram, $\triangle ABC$ is an equilateral triangle with a perimeter of 30.


    What is the length of altitude h of this triangle?

    A. $5\sqrt{2}$ B. $5\sqrt{3}$ C. $10\sqrt{2}$ D. $10\sqrt{3}$

11. The length of the hypotenuse of a right triangle is $\sqrt{15}$ and the length of one leg is 3. What is the length of the other leg?

    A. 6   B. 9   C. $\sqrt{6}$ D. $3\sqrt{2}$

12. A wall is supported by a brace 10 feet long, as shown in the diagram. If one end of the brace is placed 6 feet from the base of the wall, how many feet up the wall does the brace reach?

10 ft

6 ft
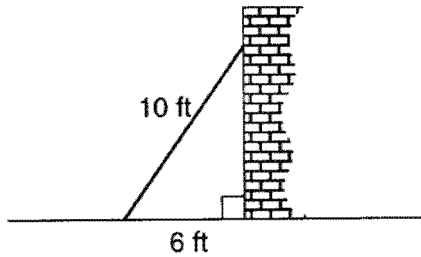
13. The accompanying diagram shows a section of the city of Tacoma. High Road, State Street, and Main Street are parallel and 5 miles apart. Ridge Road is perpendicular to the three parallel streets. The distance between the intersection of Ridge Road and State Street and where the railroad tracks cross State Street is 12 miles. What is the distance between the intersection of Ridge Road and Main Street and where the railroad tracks cross Main Street?

Tacoma

High Rd. State St. Railroad tracks Main St.

5 mi   5 mi

Ridge Rd.
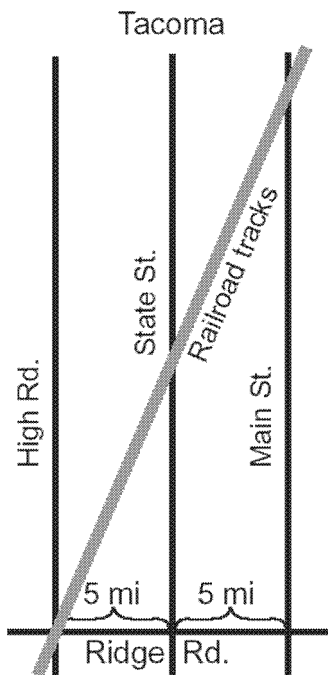
14. A woman has a ladder that is 13 feet long. If she sets the base of the ladder on level ground 5 feet from the side of a house, how many feet above the ground will the top of the ladder be when it rests against the house?

A. 8   B. 9   C. 11   D. 12

15. If the length of the legs of a right triangle are 5 and 7, what is the length of the hypotenuse?

A. $\sqrt{2}$ B. $2\sqrt{3}$ C. $2\sqrt{6}$ D. $\sqrt{74}$

16. The NuFone Communications Company must run a telephone line between two poles at opposite ends of a lake, as shown in the accompanying diagram. The length and width of the lake are 75 feet and 30 feet, respectively.
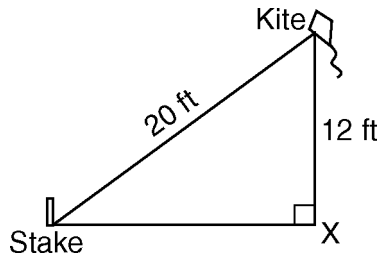
Pole 2

30 ft

Pole 1   75 ft
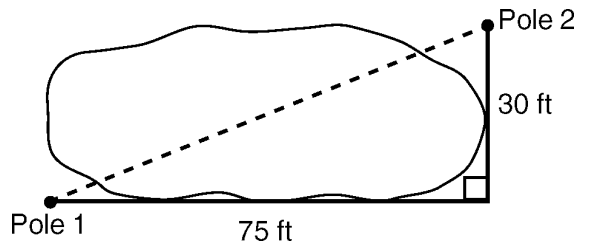
What is the distance between the two poles, to the *nearest foot*?

A. 105   B. 81   C. 69   D. 45

17. The accompanying diagram shows a kite that has been secured to a stake in the ground with a 20-foot string. The kite is located 12 feet from the ground, directly over point X. What is the distance, in feet, between the stake and point X?


18. A builder is building a rectangular deck with dimensions of 16 feet by 30 feet. To ensure that the sides form $90°$ angles, what should each diagonal measure?

    A. 16 ft   B. 30 ft   C. 34 ft   D. 46 ft

19. Theo determined that the correct length of the hypotenuse of the right triangle in the accompanying diagram is $\sqrt{20}$. Fiona found the length of the hypotenuse to be $2\sqrt{5}$. Is Fiona's answer also correct? Justify your answer.
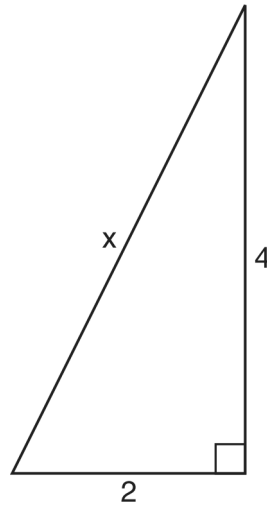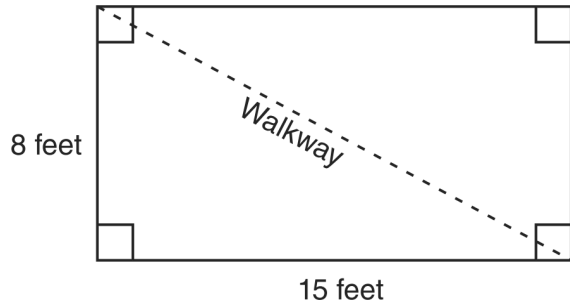

20. What is the value of x, in inches, in the right triangle below?
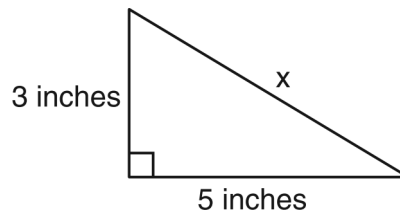
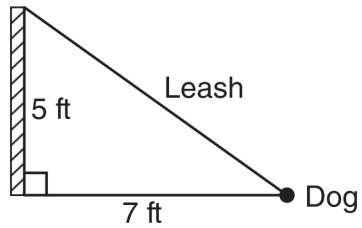   A. $\sqrt{15}$ B. 8   C. $\sqrt{34}$ D. 4

21. Nancy's rectangular garden is represented in the diagram below.

8 feet

Walkway

15 feet

If a diagonal walkway crosses her garden, what is its length, in feet?

A. 17   B. 22   C. $\sqrt{161}$ D. $\sqrt{529}$

22. The end of a dog's leash is attached to the top of a 5-foot-tall fence post, as shown in the diagram below. The dog is 7 feet away from the base of the fence post.

5 ft

Leash

7 ft

Dog

How long is the leash, to the *nearest tenth of a foot*?

A. 4.9   B. 8.6   C. 9.0   D. 12.0

Unit 6: Pythagorean Theorem   01/22/2013

1.
Answer: D

2.
Answer: D

3.
Answer: 5

4.
Answer: C

5.
Answer: 9

6.
Answer: D

7.
Answer: B

8.
Answer: B

9.
Answer: D

10.
Answer: B

11.
Answer: C

12.
Answer: 8

13.
Answer: 24 miles

14.
Answer: D

15.
Answer: D

16.
Answer: B

17.
Answer: 16

18.
Answer: C

19.
Answer: Yes

20.
Answer: C

21.
Answer: A

22.
Answer: B