Name: _____

7.1 ~ The Pythagorean Theorem

Past due on: _____ Period: _____

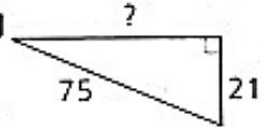1. Each triangle below is a multiple of a common Pythagorean Triple.

   3, 4, 5   **5, 12, 13**   **8, 15, 17**   **7, 24, 25**

   Find the missing side of each triangle by identifying the Pythagorean Triple and the multiplier. If necessary, use the Pythagorean Theorem.

   a 9, 15, ?

   c 24, ?, 26

   e 16, 30, ?

   g ?, 75, 21

   b 51, 24, ?

   d 1.3, 1.2, ?

   f 42, 150, ?
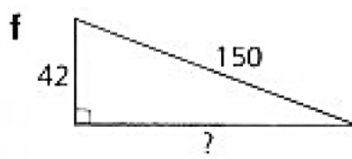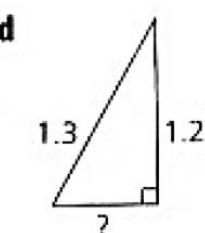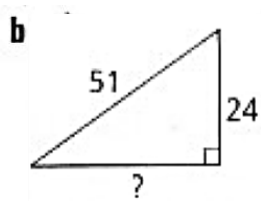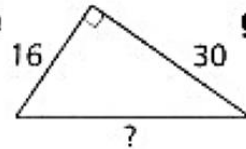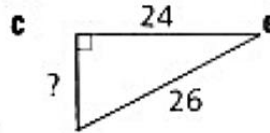
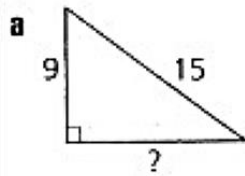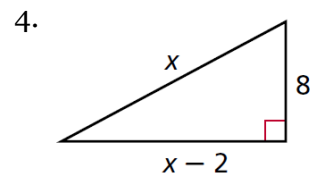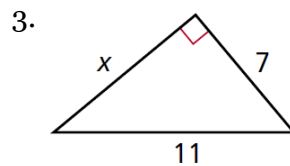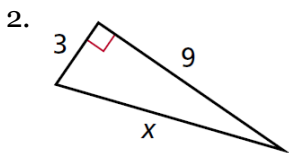Use the Pythagorean Theorem to find the value of x. If necessary, express your solution as a radical in simplest form.

2. 3, 9, x

3. x, 7, 11

4. x, 8, $x-2$

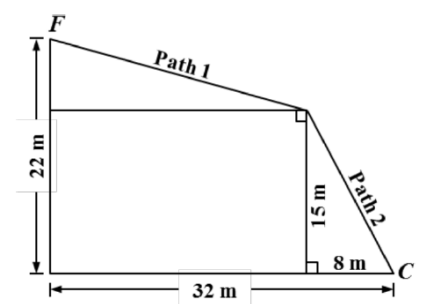Is the triangle with the three given side lengths acute, right, or obtuse? Show how you obtained your answer.
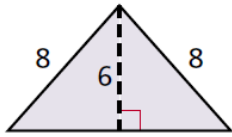
5. $5.0, 1.4, 4.8$

6. $3, 2, \sqrt{12}$

7. $6, 13, \sqrt{207}$

8. Fernando followed two diagonal paths, Paths 1 & 2, to get from his house, F, to the corner store, C, as shown. What is the total distance of the two paths, in meters, from F to C?
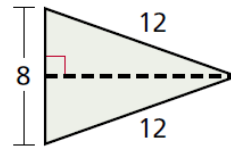
   F, Path 1, 22 m, 15 m, Path 2, 8 m, C, 32 m

Find the area of each triangle. Express your solution as a radical in simplest form.
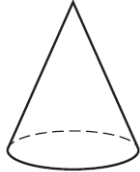
9.

8   8
6

10.

12
8
12

11. A cone has a base area of 16π cm^3 and a slant height of 3 cm. What is wrong with this cone?

12. Tara drives due north for 20 miles and then east for 12 miles. How far is Tara from her starting point? *Round your solution to the nearest tenth of a mile.*

13. A 50-foot cable is stretched from the to of an antenna to an anchor point on the ground 15 feet from the base of the antenna. What is the height of the antenna? *Round your solution to the nearest tenth of a foot.*

14. A painter sets a ladder up to reach the bottom of a second-story window 16 feet above the ground. The base of the ladder is 12 feet from the house. While the painter mixes the paint, a neighbor's dog bumps the ladder, which moves the base 2 feet farther away from the house. How far up the side of the house does the ladder now reach? *Round your solution to the nearest tenth of a foot.*

16 ft
x
2 ft   12 ft
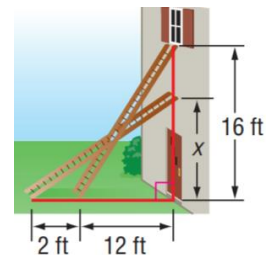
15. An 18-foot pole is broken during a storm. The top of the pole touches the ground 12 feet from the base of the pole. How tall is the part of the pole left standing?

12 ft

Chapter 7: Right Triangles & Trigonometry