

# 10-1 Practice

## The Pythagorean Theorem

Use the triangle at the right. Find the missing side length. If necessary, round to the nearest tenth.

1.  $a = 16, b = 12$

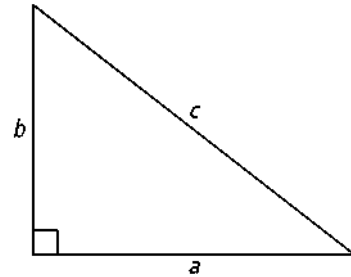
2.  $a = 0.8, b = 0.6$

3.  $a = 15, c = 20$

4.  $b = 18, c = 30$

5.  $a = 72, c = 98$

6.  $b = 32, c = 44$



7. A hiker goes six miles east and then turns south. If the hiker finishes 7.2 miles from the starting point, how far south did the hiker go?

8. A pilot flies a plane south and then 600 miles west, where she lands the plane. How far south did the pilot fly the plane if she lands 610 miles from her starting point?

9. A teacher is cutting along the diagonal of a rectangular piece of construction paper for a bulletin board which is 11 inches long and 8.5 inches wide. What will be the length of the cut?

10. How long is the diagonal of a 12 mm-by-16 mm face of a rectangular prism?

**Determine whether the given lengths can be side lengths of a right triangle.**

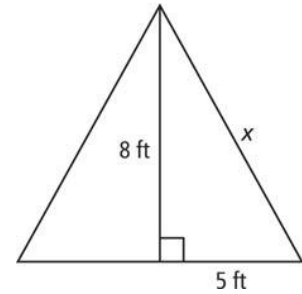
11. 15 m, 20 m, 25 m

12. 22 ft, 24 ft, 30 ft

13. 38 yd, 72 yd, 80 yd

14. 46.5 cm, 62 cm, 77.5 cm

15. A roofer is gathering information for purchasing supplies for the roof shown at the right. Using the dimensions shown, what is the length  $x$  of the roof from the top to the lower edge? If necessary, round to the nearest tenth.



Any set of three positive integers that satisfies the equation  $a^2 + b^2 = c^2$  is a *Pythagorean triple*. Determine whether each set of numbers is a Pythagorean triple.

16. 5, 9, 11

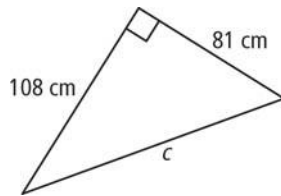
17.  $\sqrt{3}, \sqrt{4}, \sqrt{5}$

18. 8, 10, 6

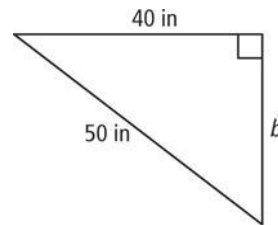
19.  $\sqrt{5}, \sqrt{8}, \sqrt{13}$

Find each missing side length.

20.



21.



22. A rectangular box is 9 in. wide, 11 in. tall, and 20 in. long. What is the diameter of the smallest circular opening through which the box will fit? If necessary, round to the nearest tenth of a centimeter.

23. Find the height of a pyramid whose square base measures 30 yd on each side and whose slant height is 45 yd. If necessary, round to the nearest tenth of a yard.

24. The area of a square is  $625 \text{ cm}^2$ . What is the measure of the diagonal to the nearest tenth.

25. A landscaper attaches a guy wire 10ft up the trunk of a newly planted sapling. He stakes the wire between 20 and 25 feet from the tree. What could be the length of the guy wire if it forms a right triangle with the tree?

