ASSIGNMENT 66 LESSON 7.6 SHOW ALL WORK FOR FULL CREDIT

Find sin R and sin S. Write each answer as a fraction and as a decimal. Round to four decimal places, if necessary.

1.

2.

3.

4.

5.

6.
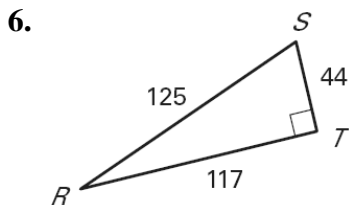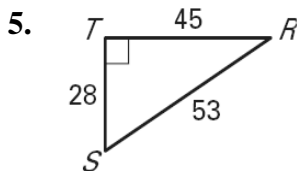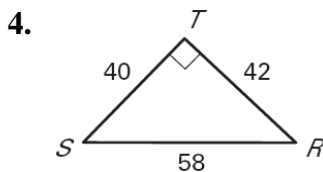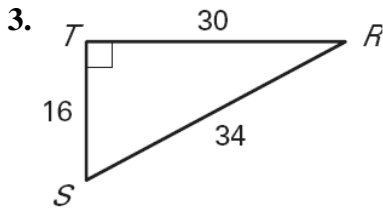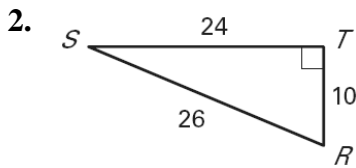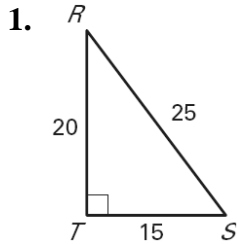
Find cos A and cos B. Write each answer as a fraction and as a decimal. Round to four decimal places, if necessary.

7.

8.

9.

10.

11.

12.
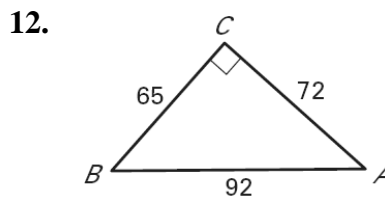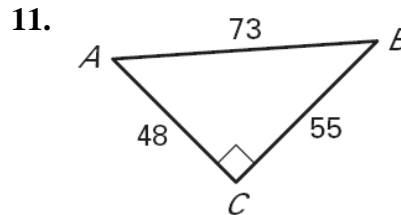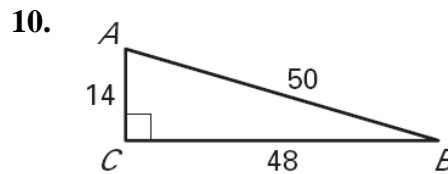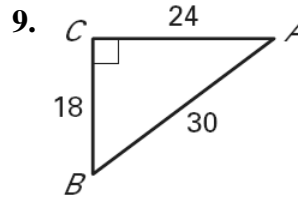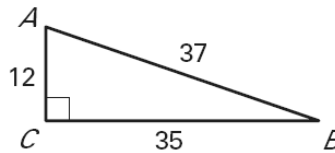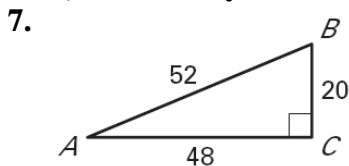
Use a cosine or sine ratio to find the value of each variable. Round decimals to the nearest tenth.

13.

14.

15.

16.

A triangle with top side labeled 32, angle 51° at upper right vertex (labeled u), side from left down to bottom-right with right angle, angle t at lower-left vertex.

17.

A right triangle with angle 47° at top, side x on left, side 12 from top to lower right, right angle at bottom, side y along bottom.

18.

A triangle with angle 39° at upper left, side g at top, side 44 on left, right angle at bottom, side h along bottom right.

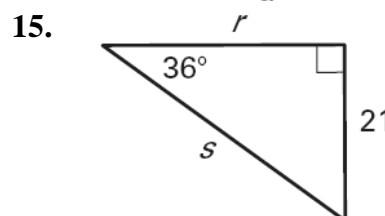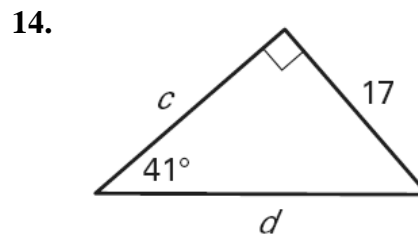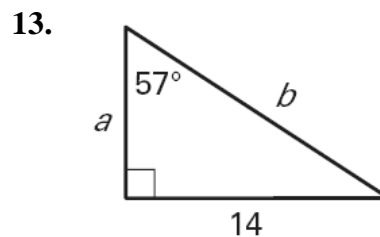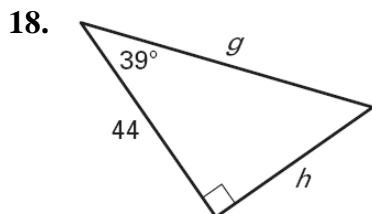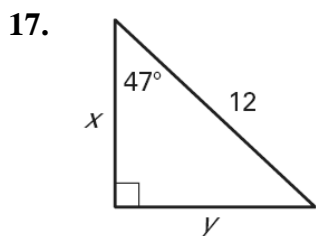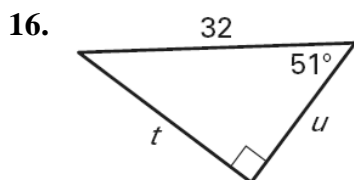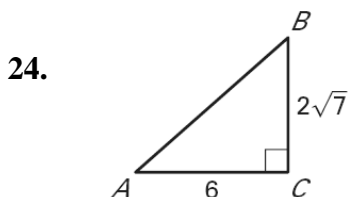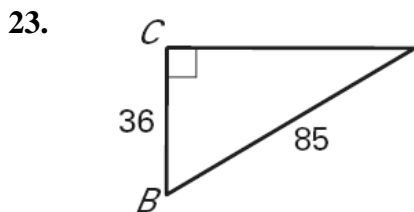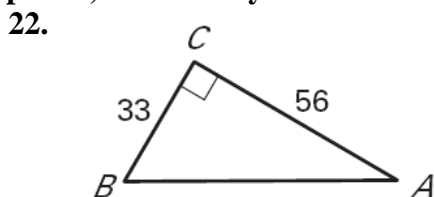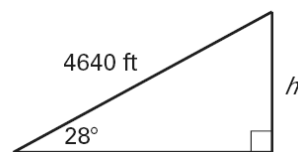**Use the 45°-45°-90° Triangle Theorem or the 30°-60°-90° Triangle Theorem to find the sine and cosine of the angle.**

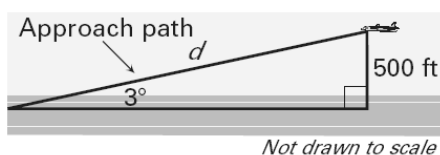**19.** a 30° angle
20. a 45° angle
21. a 60° angle

Find the unknown side length. Then find sin A and cos A. Write each answer as a fraction in simplest form and as a decimal. Round to four decimal places, if necessary.

22.

Triangle with right angle at C (top), side 33 from C to B, side 56 from C to A, B at lower left, A at lower right.

23.

Triangle with right angle at C (top), side 36 from C to B, side 85 from C to A (hypotenuse), B at lower left.

24.

Triangle with vertices A (lower left), B (top), C (lower right). Side $2\sqrt{7}$ from B to C, right angle at C, side 6 along bottom from A to C.

25.

Triangle with A at upper left, B at upper right, side 12 along top from A to B, side $3\sqrt{7}$ from A down to C, right angle at C (bottom).

26. Ski Lift A chair lift on a ski slope has an angle of elevation of 28° and covers a total distance of 4640 feet. To the nearest foot, what is the vertical height h covered by the chair lift?

A right triangle with hypotenuse labeled 4640 ft, angle 28° at lower left, vertical side h at right, right angle at bottom right.

27. Airplane Landing You are preparing to land an airplane. You are on a straight line approach path that forms a 3° vertical angle with the runway. What is the distance d along this approach path to your touchdown point when you are 500 feet above the ground? Round your answer to the nearest foot.

Approach path diagram: angle 3° at left, distance d along the path, 500 ft vertical on right, right angle at bottom.

Not drawn to scale

28. Extension Ladders You are using extension ladders to paint a chimney that is 33 feet tall. The length of an extension ladder ranges in one-foot increments from its minimum length to its maximum length. For safety, you should always use an angle of about 75.5° between the ground and the ladder.

Diagram of ladder against chimney wall with angle 75.5° at base.
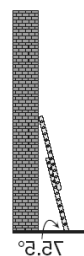
a. Your smallest extension ladder has a maximum length of 17 feet. How high does this ladder safely reach on a vertical wall?

b. You place the base of the ladder 3 feet from the chimney. How many feet long should the ladder be?

c. To reach the top of the chimney, you need a ladder that reaches 30 feet high. How many feet long should the ladder be?