

5-4

Practice

Applying Trigonometric Functions

Solve each problem. Round to the nearest tenth.

1. If $A = 55^\circ 55'$ and $c = 16$, find a .

13.3

2. If $a = 9$ and $B = 49^\circ$, find b .

10.4

3. If $B = 56^\circ 48'$ and $c = 63.1$, find b .

52.8

4. If $B = 64^\circ$ and $b = 19.2$, find a .

9.4

5. If $b = 14$ and $A = 16^\circ$, find c .

14.6

6. **Construction** A 30-foot ladder leaning against the side of a house makes a $70^\circ 5'$ angle with the ground.

- a. How far up the side of the house does the ladder reach?

about 28.2 ft

- b. What is the horizontal distance between the bottom of the ladder and the house?

about 10.2 ft

7. **Geometry** A circle is circumscribed about a regular hexagon with an apothem of 4.8 centimeters.

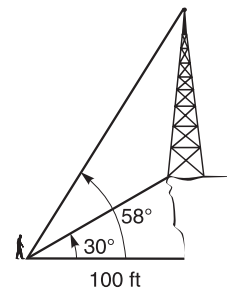
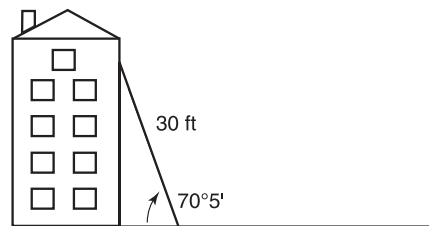
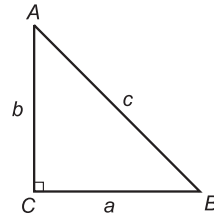
- a. Find the radius of the circumscribed circle. **about 5.5 cm**

- b. What is the length of a side of the hexagon? **about 5.5 cm**

- c. What is the perimeter of the hexagon? **about 33 cm**

8. **Observation** A person standing 100 feet from the bottom of a cliff notices a tower on top of the cliff. The angle of elevation to the top of the cliff is 30° . The angle of elevation to the top of the tower is 58° . How tall is the tower?

about 102.3 ft



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Making a Hypsometer

A **hypsometer** is used to measure the height of an object. To construct a simple hypsometer, you need a rectangular piece of cardboard, a straw, a transparent string, and a weight that can be attached to the string.

Mark off 1-cm intervals on the cardboard. Then, attach the weight to one end of the string to one corner of the cardboard. The diagram below shows the construction.

To use the hypsometer, hold the base of the cardboard stand when you sight the top of the object.

Sight the top of the object through the hole in the hanging string to find the height of the object.

1. Draw a diagram of the hypsometer.

See student work for details.

Use your hypsometer to measure the height of:

2. your school building
3. a tree on your campus
4. the highest point of a mountain
5. the goal post on a football field
6. the hoop on a basketball court
7. the top of a flagpole
8. the top of a cliff
9. the top of a tower
10. the top of a chimney