Name _____

**1**   Mr. Garcia's students are drafting blueprints for a triangular courtyard. If the lengths of two sides of the triangle in the blueprint are 7 inches and 4 inches, which of the following could be the length of the third side of the triangle?

Mark your answer here: 1. Ⓐ Ⓑ Ⓒ Ⓓ

   A.   1 inch

   B.   2 inches

   C.   5 inches

   D.   12 inches

2   Martin uses a ramp to practice skateboarding. The ramp leans against a wall. The right triangle formed by the ramp, the wall, and the ground is represented by the diagram below.

Mark your answer here: 2. Ⓐ Ⓑ Ⓒ Ⓓ
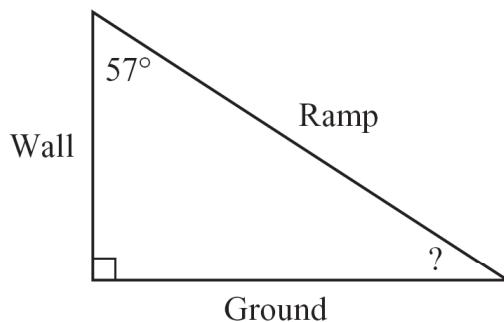
The measure of the angle formed by the wall and the ramp is 57°. What is the measure of the angle formed by the ramp and the ground?
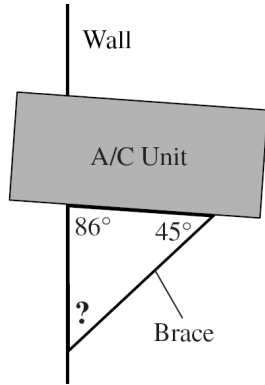
   A.   33°

   B.   43°

   C.   93°

   D.   123°

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Name _____

3 A window air conditioning unit is supported with a brace against an outside wall, as shown.
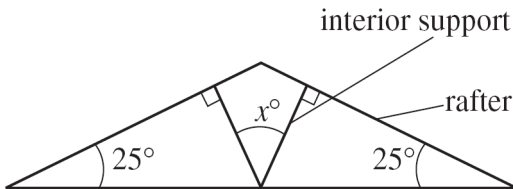
Mark your answer here: 3. Ⓐ Ⓑ Ⓒ Ⓓ

Wall

A/C Unit

86°   45°

?

Brace

What is the measure of the angle indicated by the question mark?

A. 41º

B. 43º

C. 45º

D. 49º

4 Each of the two interior supports for part of a roof is perpendicular to a rafter, as shown below.

Mark your answer here: 4. Ⓐ Ⓑ Ⓒ Ⓓ

interior support

$x°$

rafter

25°   25°

What is x, the measure, in degrees, of the angle formed by the two interior supports?

A. 50

B. 65

C. 90

D. 130

5 Degree measures for the angles in $\triangle ABC$ are given below.

Mark your answer here: 5. Ⓐ Ⓑ Ⓒ Ⓓ
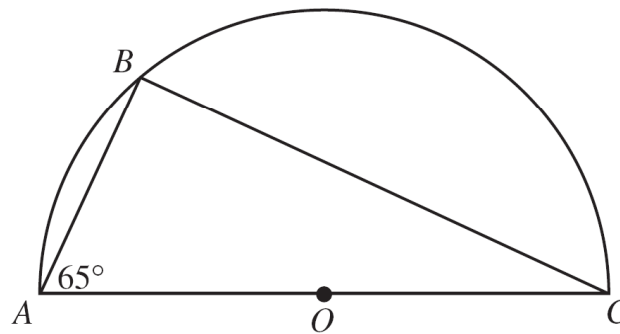
- $m\angle A = x°$
- $m\angle B = (x + 40)°$
- $m\angle C = 30°$
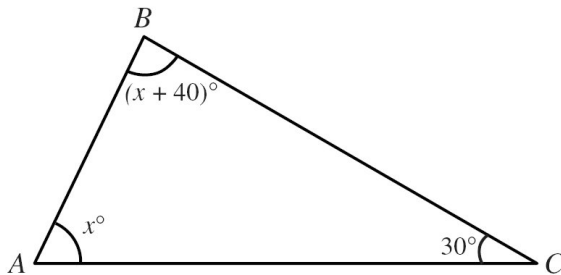
What is the degree measure of $\angle A$ in $\triangle ABC$?

6 In the figure below:

- Triangle ABC is inscribed in semicircle O.
- $m\angle A = 65°$

What is the measure of angle C?

Write your answer here:

Directions: For the problem below, use a separate piece of paper to write your answers.
              Your teacher will not count anything you write on this page.

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7   To measure the width of a stream indirectly, Claude placed four stakes in the ground at
        points *B,C, D*, and *E*. He used a rock on the opposite bank to determine point *A*.
        Triangles *ABC* and *ADE* are formed, as shown in the diagram below.
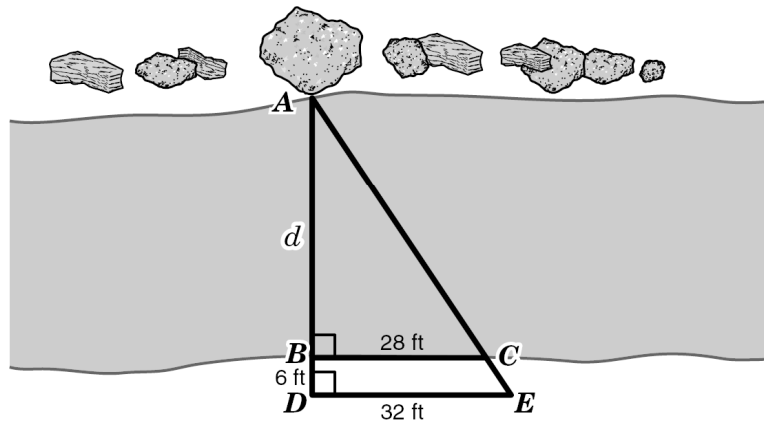
Segments $\overline{BC}$, $\overline{BD}$, $\overline{DE}$, and $\overline{CE}$ can be measured directly on land. Both $\overline{BC}$ and $\overline{DE}$ are
perpendicular to $\overline{AD}$, and *C* is on $\overline{AE}$.

a. Explain how you can show $\angle BCA$ is congruent to $\angle DEA$.

b. Explain how you know $\triangle BCA$ is similar to $\triangle DEA$.

c. Write a proportion or an equation that can be used to determine the distance (indicated
    by *d* in the diagram) across the stream.

d. What is the distance across the stream? Show or explain how you obtained your answer.