Chapter 6 Quiz 2

Multiple Choice
Identify the choice that best completes the statement or answers the question. Drawings are not to scale.

D 1. What would you use to find the length of $\overline{AC}$?

A. Sine ratio (Soh-Cah-Toa)
B. Law of Sines
C. Cosine ratio (Soh-Cah-Toa)
D. Law of Cosines

B 2. What would you use to find the missing length?

A. Sine ratio (Soh-Cah-Toa)
B. Law of Sines
C. Cosine ratio (Soh-Cah-Toa)
D. Law of Cosines

However, this triangle is impossible.

Since $101^\circ$ (the longest angle) is opposite $38\text{ cm}$, the triangle is not possible.

Because the D is impossibly the solution, many student methods gave different, incorrect answers.
3. Designers use triangles in their designs for added support. Below are some custom welded trusses for trade show displays. The third picture is a cut out of one triangle from the truss, find the missing length. Round to the tenths place.

\[ c^2 = a^2 + b^2 - 2ab \cos C \]
\[ c^2 = 24^2 + 20^2 - 2(24)(20) \cos 85^\circ \]
\[ c^2 \approx 892.330487 \]
\[ c \approx 29.9 \text{ in.} \]

*Note: Images from the website of ITTradeShowShop.com

A. 892.3 inches  
B. 210.9 inches  
C. 31.2 inches  
D. 29.9 inches

4. For structural reasons bridges often have criss crossing trusses underneath. These trusses make many triangles like the figures below. Use the second figure to help find the missing length. Round to the nearest inch.

*Note: Image taken from http://www.rogersconnection.com/triangles/

\[ \frac{\sin 89^\circ}{x} = \frac{\sin 42^\circ}{115} \]
\[ x \left( \sin 42^\circ \right) = \frac{115 \left( \sin 89^\circ \right)}{\sin 42^\circ} \]
\[ x \approx 171.6 \text{ feet} \]

A. 8.1 feet  
B. 1632.9 feet  
C. 171.6 feet  
D. 77.1 feet
5. What would you use to find the length of the hypotenuse?

\[ \sin 52^\circ = \frac{15}{x} \]

\[ x = \frac{15}{\sin 52^\circ} \approx 19.04 \]

A. Sine ratio (Soh-Cah-Toa)  
B. Cosine ratio (Soh-Cah-Toa)  
C. Tangent ratio (Soh-Cah-Toa)  
D. Pythagorean Theorem