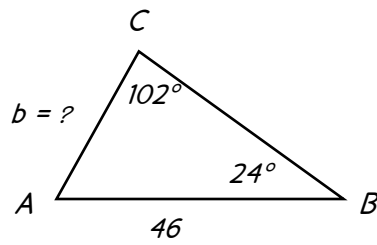
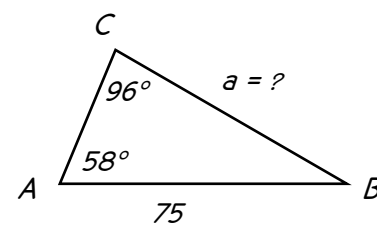
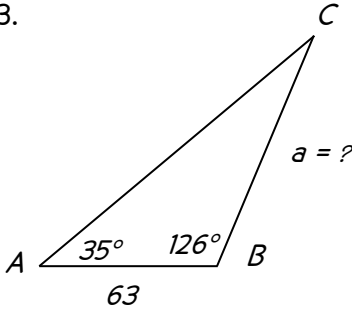
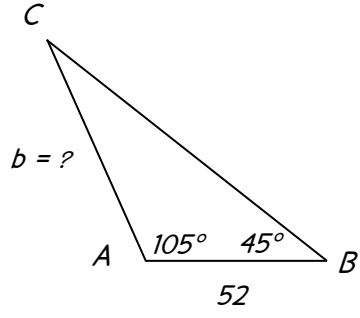


5.5 Law of Sines Homework

Problems 1 – 8, solve each triangle for the indicated side. Express your answer to nearest hundredth.

<p>1.</p>  <p>Triangle ABC with vertices A, B, and C. Angle C is 102°, angle B is 24°, side c (opposite C) is 46, and side b (opposite B) is unknown.</p>	<p>2.</p>  <p>Triangle ABC with vertices A, B, and C. Angle C is 96°, angle A is 58°, side c (opposite C) is 75, and side a (opposite A) is unknown.</p>
<p>3.</p>  <p>Triangle ABC with vertices A, B, and C. Angle A is 35°, angle B is 126°, side a (opposite A) is 63, and side a (opposite A) is unknown.</p>	<p>4.</p>  <p>Triangle ABC with vertices A, B, and C. Angle A is 105°, angle B is 45°, side a (opposite A) is 52, and side b (opposite B) is unknown.</p>
<p>5. $\angle A = 42^\circ$, $\angle B = 39^\circ$, $c = 48$; find a.</p>	<p>6. $\angle B = 72^\circ$, $\angle C = 31^\circ$, $a = 103$; find b.</p>
<p>7. $\angle A = 128^\circ$, $\angle B = 19^\circ$, $a = 46$; find c.</p>	<p>8. $\angle A = 47.6^\circ$, $\angle B = 40.3^\circ$, $b = 29$; find a.</p>

Problems 9 – 12, solve each triangle PQR . Express lengths to nearest tenth and angle measures to nearest degree.

9. $\angle P = 40^\circ$, $\angle Q = 20^\circ$, $p = 3$	10. $\angle P = 63^\circ$, $\angle R = 51^\circ$, $q = 48$
11. $\angle P = 54.2^\circ$, $\angle Q = 45.9^\circ$, $r = 75.3$	12. $\angle P = 23.8^\circ$, $\angle Q = 129.7^\circ$, $p = 112$

Problems 13 – 16, two sides and an angle are given. Determine whether the information results in one triangle, two triangles or no triangle at all. Solve any triangle(s) that results.

13. $\angle A = 67.8^\circ$, $a = 74.5$, $b = 21.3$	14. $\angle A = 114^\circ$, $a = 49$, $b = 54$
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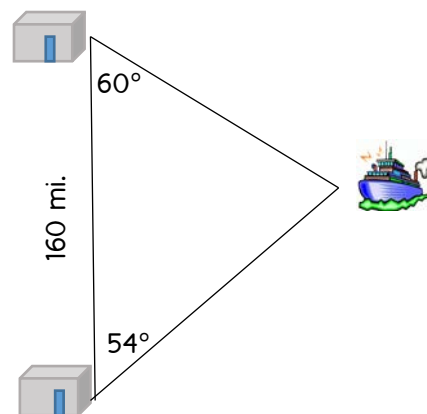
15. $\angle A = 29.8^\circ$, $a = 28.6$, $b = 35.8$

16. $\angle C = 47.1^\circ$, $b = 15.3$, $c = 11.9$

Problems 17 – 20, solve each problem.

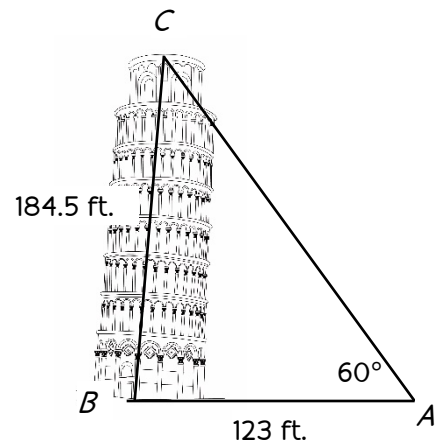
17. Medical Emergency. Two Coast Guard stations are 160 miles apart. A cruise ship sends an SOS call to dispatch an emergency medical helicopter for a sick passenger that each station receives. Station Sable reads that the ship is N 54° E, while Station Norma finds the ship is located at S 60° E, see diagram at right.

A) How far is the ship from each station?



B) If a helicopter flying at 200 miles per hour is sent from the nearest station to the ship, how long will it take to reach the ship?

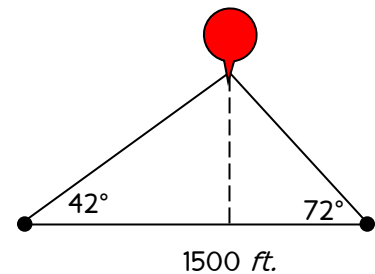
18. The Leaning Tower of Pisa originally stood 184.5 feet tall. In September, 1995, the famous bell tower suddenly shifted 0.07 inch in one night. Engineers reinforced the base and the tower was reopened to tourists in December, 2001. Suppose you are standing at a distance of 123 feet from the base of the tower. The angle of elevation to the top of the tower is 60° .



A) How many degrees is the tower leaning?

B) What is the height of the tower at this angle?

19. A used car lot has a large SALE balloon tied down to stakes 1500 feet apart. The angle of elevation from the stake at the west end of the lot to the balloon is 42° , and the angle of elevation from the stake at the east end of the lot to the balloon is 72° . What is the altitude of the balloon?



20. An engineering firm is surveying a winter ski resort to build a new lift from A to C . The survey crew measures $\angle CAD$ to be 28° . Then they move a distance of 1800 feet to point B and measure the angle to the top of the mountain to be 16° . Find the length of the new ski lift, AC .

