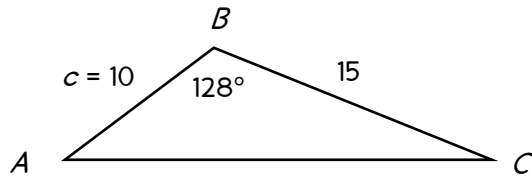


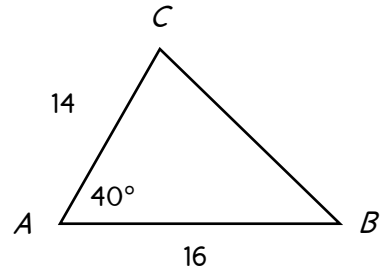
**5.6 Law of Cosines Homework**

Problems 1 – 8, solve each triangle, if possible. Express your answer to nearest hundredth.

1.



2.

3.  $\angle A = 56^\circ$ ,  $b = 15$ ,  $c = 8$ 4.  $\angle B = 34^\circ$ ,  $a = 40$ ,  $c = 17$ 5.  $a = 12$ ,  $b = 20$ ,  $\angle C = 92^\circ$ 6.  $a = 2$ ,  $b = 6$ ,  $c = 4$

7.  $\angle A = 57^\circ$ ,  $b = 12$ ,  $c = 9$

8.  $\angle B = 70.6^\circ$ ,  $a = 9.5$ ,  $c = 8.2$

Problems 9 – 10, find the area of the triangle.

9.  $\angle A = 48^\circ$ ,  $b = 34$  in.,  $c = 20$  in.

10.  $\angle C = 110^\circ$ ,  $a = 2.4$  ft.,  $b = 5.6$  ft.

Problems 11 – 14, decide whether a triangle can be formed with the given side lengths. If so, use Heron's formula to find the area of the triangle.

11.  $a = 6$ ,  $b = 6$ ,  $c = 10$

12.  $a = 3$ ,  $b = 5$ ,  $c = 9$

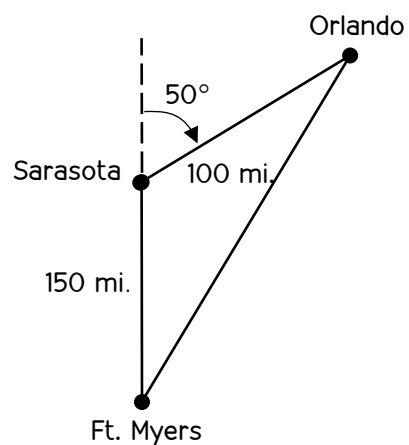
13.  $a = 18.7$ ,  $b = 21.6$ ,  $c = 32$

14.  $a = 17.4$ ,  $b = 16.2$ ,  $c = 12.3$

Problems 15 – 18, solve each problem.

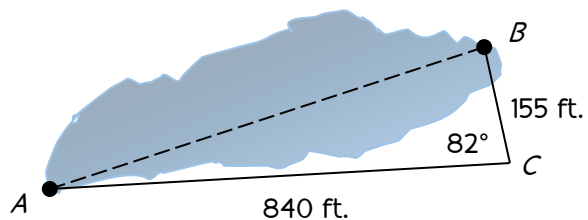
15. A jet plane flies 150 miles, from Ft. Myers, FL to Sarasota, FL, and then turns  $50^\circ$  towards the east heading to Orlando, FL which is a distance of 100 miles.

A) How far is the return trip from Orlando to Ft. Myers?



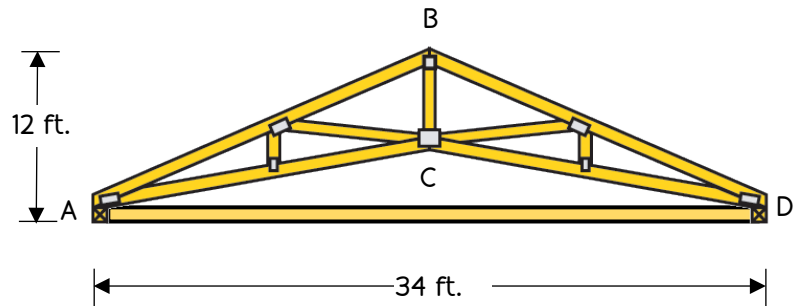
B) Through what angle should the pilot turn at Orlando to return to Ft. Myers?

16. Rachel must find the distance from  $A$  to  $B$  on the opposite sides of a lake. She locates a point  $C$  that is 840 feet from  $A$  and 155 feet from  $B$ . Her angle at  $C$  measures  $82^\circ$ . What is the distance across the pond to the nearest foot?



17. A truss company is designing the truss for a new home shown below.

A) If  $m\angle CAD = 10^\circ$ , find the measure of  $\angle BAC$ .



B) Find the length of  $AB$ .

C) Find the length of  $AC$ .

18. A Major League baseball diamond is actually a square whose sides measure 90 feet. The pitching mound is 60.5 feet from home plate on a line that joins home plate and second base.

A) Find the distance from the pitching mound to first base.

B) How far is it from the pitching mound to second base?

C) If a pitcher is facing home plate, through what angle does he need to turn to face first base?