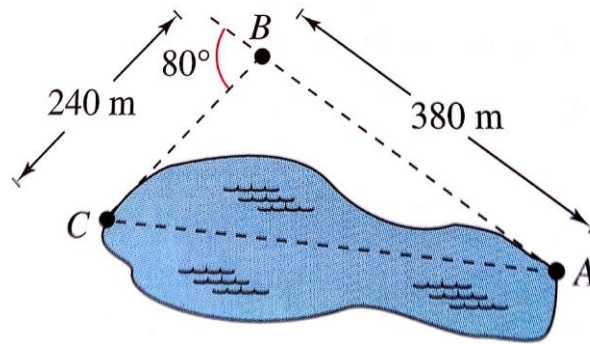
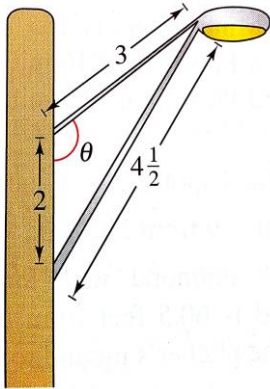
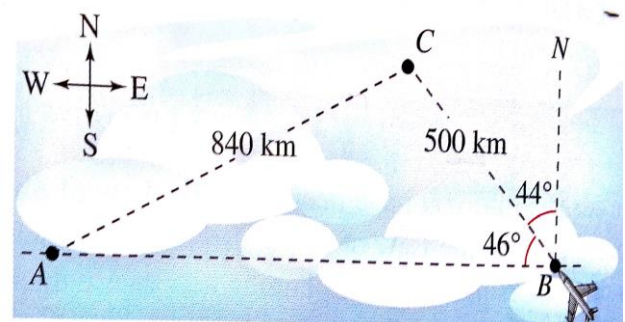
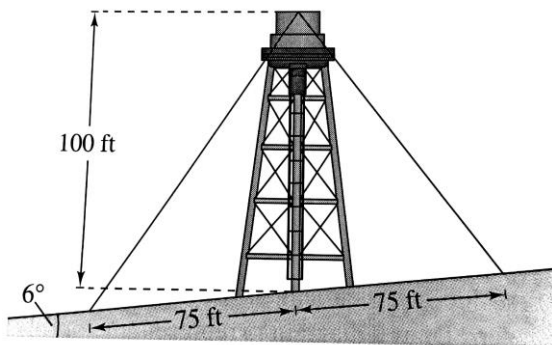


Solve.

- Determine the angle,  $\theta$ , in the design of the streetlight shown in the figure.



- To approximate the length of a marsh, a surveyor walks 380 meters from point  $A$  to point  $B$ , then turns  $80^\circ$  and walks 240 meters to point  $C$ . Approximate the length,  $AC$ , of the marsh.
- A 100-foot vertical tower is to be erected on the side of a hill that makes a  $6^\circ$  angle with the horizontal. Find the length of each of the two guy wires that will be anchored 75 feet above the uphill and downhill from the base of the tower.



- A plane flies 500 kilometers with a bearing of  $N44^\circ W$  from  $B$  to  $C$ . The plane then flies southwest 840 kilometers from  $C$  to  $A$ . Find angle  $C$ .

Given  $\triangle ABC$ , find the side or angle indicated.

5.  $C = 135^\circ, c = 45, B = 10^\circ$ . Find  $b$ .

6.  $A = 58^\circ, a = 11.4, b = 12.8$ . Find  $B$ .

7.  $A = 30^\circ, c = 12, B = 45^\circ$ . Find  $b$ .

8.  $a = 9, b = 12, c = 15$ . Find  $C$ .

Find all solutions of the equation in the interval  $[0, 2\pi)$ .

9.  $2\sin^2 x = 1$

10.  $\csc x - 2 = 0$

11.  $3\tan(x) + 3 = 0$

12.  $2\cos x - \sqrt{2} = 0$

How many solutions does each equation have in the interval  $[0, 2\pi)$ ?

13.  $\sqrt{3}\sec x - 2 = 0$

14.  $\tan^2 x = 3$

15.  $4\cos^2 x - 2 = 0$

16.  $2\cos^2 x + 3\cos x + 1 = 0$

## Answers to SLO Review Units 3 and 4

1.  $127.2^\circ$
2.  $483.4 m$
3.  $131.1 \text{ feet and } 118.6 \text{ feet}$
4.  $108.65^\circ$
5.  $b = 11.05$
6.  $B = 72.2^\circ \text{ and } 107.8^\circ$
7.  $b = 8.78$
8.  $C = 90^\circ$
9.  $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$
10.  $\frac{\pi}{6}, \frac{5\pi}{6}$
11.  $\frac{3\pi}{4}, \frac{7\pi}{4}$
12.  $\frac{\pi}{4}, \frac{7\pi}{4}$
13. 2 solutions
14. 4 solutions
15. 4 solutions
16. 3 solutions