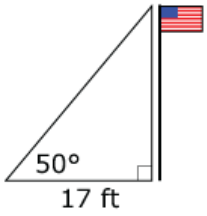
Foundations of Math 2 - Unit 3 Study Guide

1. The angle of elevation from a point 17 feet from the base of the flagpole to the top of the flagpole is 50 degrees. What is the approximate height, to the nearest foot, of the flagpole?

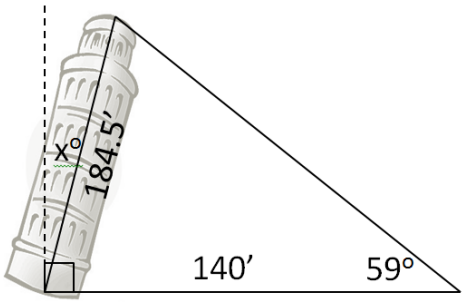


a. 20 ft b. 14 ft c. 13 ft d. 11 ft

2. A 13-foot ladder is resting against a building 12 feet above the ground. What is the angle formed by the ladder and the ground?

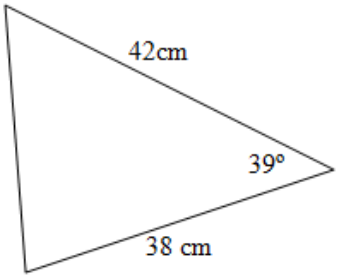
a. 23° b. 43° c. 47° d. 67°

3. The original height of the Leaning Tower of Pisa was 184.5 ft. At a distance of 140 feet from the base of the tower, the angle of elevation from the ground to the top of the tower is 59 degrees. How far is the tower leaning from the original vertical position? (In other words, find the angle x.)



a. 40.6^o b. 9.6^o c. 59° d. 80.43^o

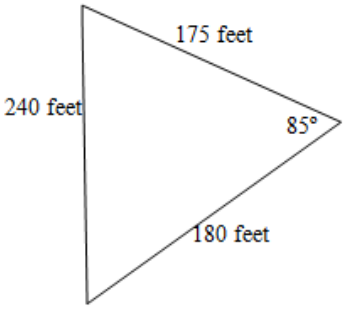
4. To find the missing side length below, would you use Law of Sines or Law of Cosines? Find the missing side length.



A. Law of Cosines, 27 cm C. Law of Sines, 1199.2 cm

B. Law of Cosines, 727.4 cm D. Law of Sines, 34.6 cm

5. Triangles are used in buildings and bridges because they are rigid which makes them strong. Below you see one example of triangles in a building. Use the figure on the right to find the area of one of the giant triangles on a building.



A. 21,518 ft^2 C. 15,690 ft^2

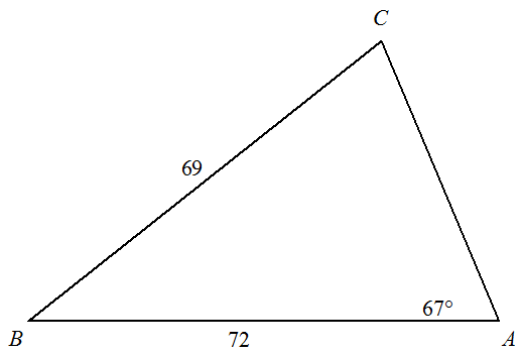
B. 20,920 ft^2 D. 31,380 ft^2

6. In ΔMEG, m = 28 cm, e = 17 cm, and g = 13 cm. Find the measure of angle G.

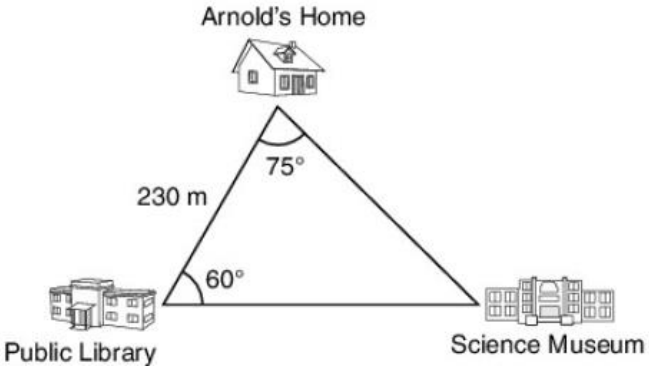
A) 15.51˚ B) 18.27˚ C) 24.2˚ D) 137.5˚

7. Find the measure of angle C, to the nearest tenth.

a. 106.2° b. 118.1° c. 61.9° d. 73.8°



8. As part of a project for his geometry class, Arnold located his home, the public library, and the museum on a section of a city map. He connected the locations using straight lines and used a protractor to measure some of the angles. The results are shown below.



If Arnold's home is 230 meters form the public library, what is the approximate distance between the public library and the science museum?

a. 168.4 m
b. 206.2 m
c. 281.7 m
d. 314.2 m

9. Two airplanes leave an airport at the same time. The angle between the planes' flight paths is 24^0. An hour later, one plane has traveled 300 miles and the other has traveled 200 miles. How many miles apart are the planes at this time? If necessary, round your answer to the nearest mile.

a. 100 miles b. 143 miles c. 224 miles d. 361 miles

Short Answer: You must show all of your work to receive credit for #10 and #11.

A pilot is flying over a straight highway. There are two mileposts on the highway on opposite sides of the plane. The angle of elevation from milepost A to the plane is 32°. The angle of elevation from milepost B to the plane is 48°. The two mileposts are 5 miles apart.

10. Find the direct distance from the plane to milepost A.

11. Find the altitude of the plane. How high is the plane above the highway?