

1.5 Applications of Law of Sines and Cosines

Worksheet # 1

1. John wants to measure the height of a tree. He walks exactly 100 feet from the base of the tree and looks up. The angle from the ground to the top of the tree is 33° . This particular tree grows at an angle of 83° with respect to the ground rather than vertically (90°). How tall is the tree?

2. Two airplanes leave an airport, and the angle between their flight paths is 40° . An hour later, one plane has traveled 300 miles while the other has traveled 200 miles. How far apart are the planes at this time?

3. A building is of unknown height. At a distance of 100 feet away from the building, an observer notices that the angle of elevation to the top of the building is 41° and that the angle of elevation to a poster on the side of the building is 21° . How far is the poster from the roof of the building?

4. A parallelogram has sides of 18 and 26, and an angle of 21° . Find the length of the longer diagonal and the area of the parallelogram.

6. Mary is sailing across the ocean from Marker A to Marker B which are 4 miles apart. After sailing 1.8 miles she realizes she is 6° off-course. To the nearest tenth of a mile, how far from Marker B is she when she realizes her error?