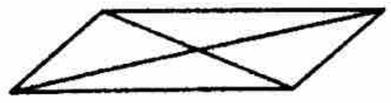
PreAP PreCalculus Unit 6 Law of Sines and Cosines

6.7 Oblique Triangle Word Problems

Name KEY

1. The diagonals of a parallelogram are 88 cm and 66 cm. The shorter side is 20 cm. Find the acute angle formed by the two diagonals. {nearest tenth}

25.3°



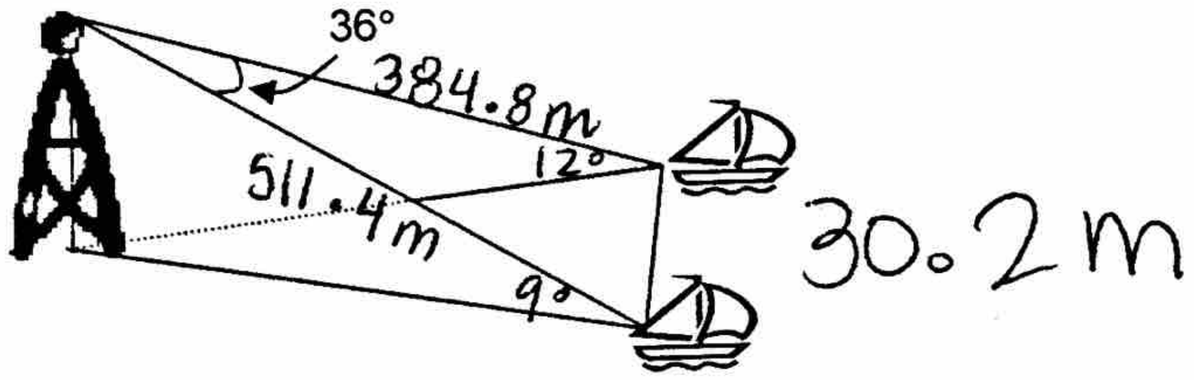
2. Maria hears the 4:00 pm whistle of Wilson Industries at 4:10, and she hears rhe 4:00 whistle of Ramos Manufacturing at 4:18. If the angle between Maria's lines of sight to the two plants is 56°, how far apart are they? (The speed of sound is 340 m/s.) {nearest 10th}

304,425.5m (304.4km)

3. A guy wire bracing a transmission tower is 20 meters long and makes an angle of 50° with the ground. It is to be replaced by a 30 meter wire starting from the same point on the ground. How much farther up the tower will the new wire reach? {nearest 10th}

12.1m

4. From the top of a tower 80 meters above sea level, an observer sights a sailboat at an angle of depression of 9°. Turning in a different direction, he sights another sailboat at an angle of depression of 12°. The angle between the two lines of sight is 36°. How far apart are the boats? {nearest 10th} separate the triangles!



30.2m

5. A pilot of a transoceanic jet flying at an altitude of 11,500 m finds that a stationary ship is in the same vertical plane as the jet's course. He measures the ship's angle of depression to be 16°. Two minutes later he finds it to be 46°. Find the speed of the jet. {nearest 10th}

14,500m/min OR 241.7m/s

6. A vertical tower stands at the top of a hill which is inclined 16° to the horizontal. At a point 95 feet down the hill, an observer finds the angle of elevation to the top of the tower to be 54°. How tall is the tower? {nearest 10th}

99.5 feet