1. Juan and Romella are standing at the seashore 10 miles apart. The coastline is a straight line between them. Both can see the same ship in the water. The angle between the coastline and the line between the ship and Juan is 35 degrees. The angle between the coastline and the line between the ship and Romella is 45 degrees. How far is the ship from Juan?

2. During a baseball game, an outfielder caught a ball hit to dead center field, 400 ft from home plate. If the distance from home base to first base is 90 feet and the angle between the hit and 1st base is 45 degrees, how far does the outfielder need to throw the ball to get it to 1st base?

3. Tom, Dick, and Harry are camping in their tents. If the distance between Tom and Dick is 153 feet, the distance between Tom and Harry is 201 feet, and the distance between Dick and Harry is 175 feet, what is the angle between Dick, Harry, and Tom?

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

5. Airplane A is flying directly toward the airport which is 20 miles away. The pilot notices airplane B 45 degrees to her right. Airplane B is also flying directly toward the airport. The pilot of airplane B calculates that airplane A is 50 degrees to his left. Based on that information, how far is airplane B from the airport?

6. Three soccer players are practicing on a field. The triangle they create has side lengths of 18, 14, and 15 feet. At what angles are they standing from each other.

7. A ship traveled 60 miles due east and then adjusted its course 15 degrees northward. After traveling for a while, the ship turned back towards port. The ship arrived in port 139 miles later. How far did the ship travel on the second leg of the journey? What angle did the ship turn through when it headed back to port?

8. Matt measures the angle of elevation of the peak of a mountain as 35º. Susie, who is 1200 feet closer on a straight level path, measures the angle of elevation as 42º. How high is the mountain?

9. A real estate agent has just take a trigonometry class at the local community college. She is considering purchasing a piece of property and is waiting for the surveyor’s report before closing the deal. If the surveyor submits a drawing as in the figure below, explain why the agent will reject the sale.

71º

400 ft

370 ft