**Homework 11**

*For each problem, first draw a diagram and label it. Then, decide which law to use and solve. Round answers to the nearest tenth.*

1. **Finding Distance:** Two observers are standing 500 feet apart on level ground, looking at a hot air balloon. The angle of elevation from the first observer to the balloon is 35∘. The angle of elevation from the second observer to the balloon is 60∘ and the balloon is between the observers. How far is the balloon from the first observer?
2. **Surveying:** A surveyor needs to determine the distance between two points, A and B, on opposite sides of a river. She chooses a third point, C, which is on the same side as A and is 200 feet away from A. She measures the angle CAB to be 85∘ and the angle ACB to be 50∘. What is the distance between A and B?
3. **Finding Height (Two Steps):** From a point on the ground, the angle of elevation to the top of a hill is 25∘. If you move 300 feet closer to the hill, the angle of elevation is now 40∘. What is the height of the hill? (Hint: First use the Law of Sines on the triangle on the ground to find the distance from the second point to the top of the hill. Then use SOH CAH TOA on the right triangle).
4. **Area Problem (SAS):** A triangular park is bordered by two streets that intersect at an angle of 80∘. The lengths of the borders along these streets are 150 feet and 200 feet. Find the area of the park.
5. **Area Problem (SSS):** A farmer has a triangular plot of land with sides measuring 300 meters, 400 meters, and 500 meters. Find the area of the plot using Heron's formula.