This lab requires you to:

Use the Law of Sines to solve oblique triangles.

Use the Law of Cosines to solve oblique triangles.

Use Heron’s formula to find the area of a triangle.

Solve applied problems.

Answer the following questions to complete this lab:

1. Define the Law of Sines.
2. Define the Law of Cosines.
3. Describe in two or three sentences the Ambiguous Case.
4. Solve the triangle. Round lengths to the nearest tenth and angle measure to the nearest degree.





Find the value of *B*, *b*, and *c*.

1. Two sides and an angle (SSA) of a triangle are given. Determine whether the given measurements produce one triangle, two triangles, or no triangle at all.

*a* = 7, *b* = 5, *A* = 70°



1. A surveyor needs to determine the distance between two points that lie on opposite banks of a river. The figure shows that 300 yards are measured along one bank. The angles from each end of this line segment to a point on the opposite bank are 620 and 530. Find the distance between *A* and *B* to the nearest tenth of a yard.



1. The diagram below shows three islands in Florida Bay. You rent a boat and plan to visit each of these remote islands. If you are on island *B*, on what bearing should you navigate to go to island *C*?

Island *A*

Island *C*

Island *B*

6 miles

5 miles

7 miles

*NW*

*N*

1. Use Heron's formula to find the area of the triangle. Round to the nearest square feet.

*a* = 5 feet, *b* = 5 feet, *c* = 4 feet.

Submission Requirements: Answer all the questions included in the lab. You can submit your answers in a Microsoft Word document, or write your answers on paper and then scan and submit the paper. Name the file as InitialName\_LastName\_Lab5.1\_Date.

Evaluation Criteria:

Did you show the appropriate steps to solve the given problems?

Did you support your answers with appropriate rationale wherever applicable?

Were the answers submitted in an organized fashion that was legible and easy to follow?

Were the answers correct?