

**PreAP Precalculus: Practice Test Law of Sines & Cosines**

Calculator permitted. Round all answers to 3 decimals with NO INTERMEDIATE ROUNDING ERROR.

Given the information for each triangle below, complete the chart. If there are more than one possible solutions, give the full solution to **both** triangles. If there is no triangle or unique triangle, say so and justify. Assume all angles in degrees. SHOW ALL WORK, DRAW ALL TRIANGLES!!

|    | <i>a</i> | <i>b</i> | <i>c</i> | <i>A</i> | <i>B</i> | <i>C</i> | <i>AREA</i> |
|----|----------|----------|----------|----------|----------|----------|-------------|
| 1. |          |          | 50       | 11       | 27       |          |             |
| 2. | 10       | 6        |          |          | 31       |          |             |
| 3. | 9        | 18       | 8        |          |          |          |             |
| 4. | 10       |          | 5        |          | 10       |          |             |
| 5. |          |          |          | 58       | 72       | 50       |             |
| 6. | 20       |          |          | 30       | 60       |          |             |
| 7. | 3        | 7        | 8        |          |          |          |             |
| 8. | 4        | 1        |          |          | 34       |          |             |

9. Determine the area of a regular pentagon which is inscribed in a circle of radius 8.76 ft.
10. A builder must know the distance across a small lake between two points *A* and *B*. A surveyor is hired to measure the distances from *C* to *A* and from *C* to *B* and finds them to be 700 and 612 yd, respectively. The measure of  $\angle ACB$  is  $79^\circ$ . Determine the distance from *A* to *B*.
11. From the top of a 100-foot lighthouse on top of a hill, a ship is observed at an angle of depression measuring  $17.6^\circ$ . If the angle of depression to the ship from the base of the lighthouse measures  $15.4^\circ$ , how many feet is it from the ship to the base of the lighthouse?