1. **ART** Local artists are painting barn quilts at a Community Center. The quilts are each 8 feet by 8 feet. The symmetrical pattern for a particular barn quilt is shown below.

   ![Barn Quilt Diagram]

   a. What is the area of the yellow triangle?

   b. It takes three coats of paint to make a barn quilt. If it takes 3.5 ounces of paint to cover a square foot, how much paint will be needed for the yellow triangle?

2. **ARCHITECTURE** The roof on a house has one side that is in the shape of an isosceles triangle. If the sides of this part are 18 feet long and the angle at the peak is 50°, what is the area of this part of the roof?

3. **ORIENTEERING** During an orienteering exercise, two hikers start at point A and head in a direction 30° west of south to point B. They hike 6 miles from point A to point B. From point B, they hike to point C and then from point C back to point A, which is 8 miles directly north of point C. How many miles did they hike from point B to point C?

4. **BLIMP** A blimp hovers over a soccer stadium. Players 500 feet apart at opposite ends of the stadium with the blimp between them measure the respective angles of elevation to the blimp to be 63° and 72°. How high is the blimp?

5. **AVIATION** Due to weather conditions, an airplane flies in different directions as shown in the diagram.

   ![Aviation Diagram]

   a. How far is the airport from the destination city if the direct route is taken?

   b. What are the measures of the two other angles in the triangle?

6. **PROPERTY MAINTENANCE** The McSweeneys plan to fence a triangular parcel of their land. One side of the property is 75 feet in length and forms a 38° angle with another side of the property, which has not yet been measured. The remaining side of the property is 95 feet in length. Approximate to the nearest tenth the length of fence needed to enclose this parcel of the McSweeneys’ lot.

7. **SHIP** A ship at sea is 92 miles from one radio tower and 124 miles from another. The angle between the radio signals has a measure of 156°. Find the distance between the radio towers.