

# AFM Objective 2.04

## Triangular Trigonometric Functions

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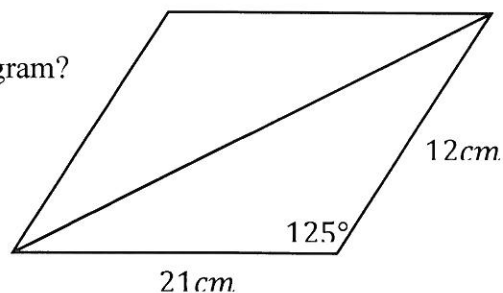
Complete the following problems on a separate sheet of notebook paper. Be neat and organized. Must draw diagram and show equation(s) used for full credit. Box in final answer. This will count as a quiz grade and is due on Monday, October 3 at the beginning of class.

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**Problem 1:** A plane takes off and travels at an angle of  $40^\circ$  north of east at 110 mph for 2 hours. It then adjusts its path to head  $10^\circ$  west of north and travels in that direction for half an hour at a speed of 100 mph. Approximately how far away is the plane from the starting point? (Must draw diagram and show equation(s) used for full credit. Box in final answer.)

**Problem 2:** A jet is flying over a long, thin island just off the coast at an altitude of 30,000 ft. The copilot notes that when looking directly out the right window, one tip of the island has an angle of depression of about  $50^\circ$  and that when looking directly out the left window the other tip of the island has an angle of depression of about  $35^\circ$ . About how many miles is the distance from one tip of the island to the other?

**Problem 3:** What is the length of the diagonal of the parallelogram?



**Problem 4:** Two sides of a triangle measure 10 inches and 13 inches. The included angle between these sides is  $55^\circ$ . What is the approximate measure of the third side of the triangle?

**Problem 5:** A roofer needs to estimate the area of a roof of a home. Use the information from the side view of the home below to find the area of the roof. The home is 180 ft long. (Note: Triangles on both sides of house are not part of roof.)

