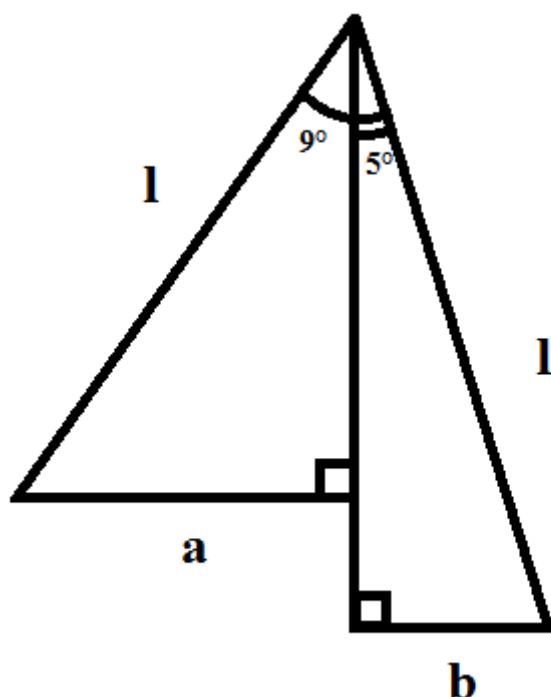# Answer on Question #67631 – Math – Trigonometry

Frank and Marie set sail from the same point. Frank is sailing in the direction S5 °E. Marie is sailing in the direction S9°W. After 3 hours, Marie was 2 miles due west of Frank. How far had Marie sailed? Round to 4 decimal places.

Solution

$a + b = 2$ (due to condition)

$a = 2 - b$

In triangle hypotenuse (l) is given by

$$l = \frac{a}{\sin 9°} = \frac{b}{\sin 5°}$$

$$\frac{b}{0.087156} = \frac{2-b}{0.156434}$$

From this equation it follows that

$0.156434 * b = 0.087156 * 2 - 0.087156 * b$

$0.24356 * b = 0.174321$

$b = 0.715595878$

$l = \frac{0.715595878}{0.087156} = 8.2105$ (miles)

Answer: 8.2105 miles.