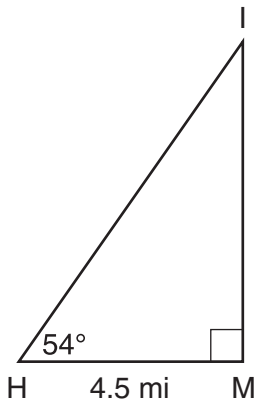
31 Bob places an 18-foot ladder 6 feet from the base of his house and leans it up against the side of his house. Find, to the *nearest degree,* the measure of the angle the bottom of the ladder makes with the ground.

34 As shown in the diagram below, an island (I) is due north of a marina (M). A boat house (H) is 4.5 miles due west of the marina. From the boat house, the island is located at an angle of 54° from the marina.



Determine and state, to the *nearest tenth of a mile,* the distance from the boat house (H) to the island (I).

Determine and state, to the *nearest tenth of a mile,* the distance from the island (I) to the marina (M).

Part IV

Answer the question in this part. A correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. A correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [6]

35 In the coordinate plane, the vertices of triangle *PAT* are $P(-1,-6)$, $A(-4,5)$, and $T(5,-2)$. Prove that $\triangle PAT$ is an isosceles triangle. [The use of the set of axes on the next page is optional.]

State the coordinates of *R* so that quadrilateral *PART* is a parallelogram.

Question 35 is continued on the next page.

Question 35 continued

Prove that quadrilateral *PART* is a parallelogram.