Section 6.7 Applications and Models

Objective: In this lesson you learned how to use trigonometric functions to solve real-life problems.

I. Applications Involving Right Triangles (Pages 520–521)

Example 1: A ladder leaning against a house reaches 24 feet up the side of the house. The ladder makes a $60^\circ$ angle with the ground. How far is the base of the ladder from the house? Round your answer to two decimal places.

II. Trigonometry and Bearings (Page 522)

In surveying and navigation, a directional bearing measures . . .

The bearing N $70^\circ$ E means . . .

Example 2: Write the bearing for the path shown in the diagram below.
III. Harmonic Motion (Pages 523–525)

A point that moves on a coordinate line is said to be in simple harmonic motion if . . .

The simple harmonic motion has amplitude __________, period __________, and frequency ________________.

Example 3: Given the equation for simple harmonic motion

\[ d = 3 \sin \frac{t}{2}, \]

find:

(a) the maximum displacement,
(b) the frequency of the simple harmonic motion, and
(c) the period of the simple harmonic motion.

Homework Assignment

Page(s)

Exercises