

Section 4.8 Applications and Models

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

Course Number

Instructor

Date

I. Applications Involving Right Triangles (Pages 355–356)

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

What you should learn

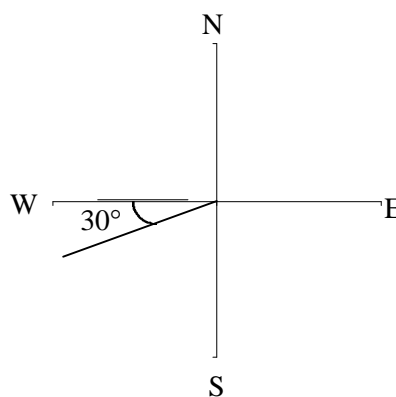
How to solve real-life problems involving right triangles

II. Trigonometry and Bearings (Page 357)

Used to give directions in surveying and navigation, a **bearing** measures . . .

The bearing N 70° E means . . .

Example 2: Write the bearing for the path shown in the diagram at the right.



What you should learn

How to solve real-life problems involving directional bearings

III. Harmonic Motion (Pages 358–360)

The vibration, oscillation, or rotation of an object under ideal conditions such that the object's uniform and regular motion can be described by a sine or cosine function is called _____.

What you should learn

How to solve real-life problems involving harmonic motion

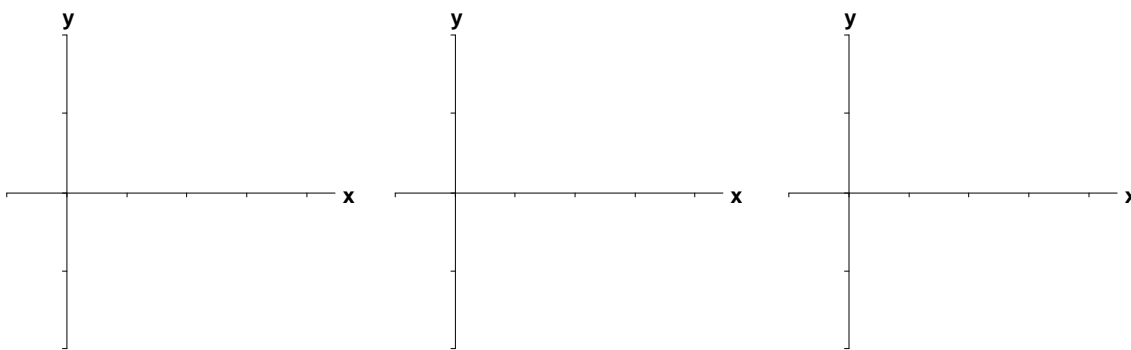
A point that moves on a coordinate line is said to be in simple harmonic motion if . . .

The simple harmonic motion has amplitude _____, period _____, and frequency _____.

Example 3: Given the equation for simple harmonic motion

$$d = 3 \sin \frac{t}{2}, \text{ find:}$$

- (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