Chapter 17 Mechanical Waves and Sound

Section 17.2 Properties of Mechanical Waves (pages 504–507)

This section introduces measurable properties used to describe mechanical waves, including frequency, period, wavelength, speed, and amplitude.

Reading Strategy (page 504)

Building Vocabulary As you read, write a definition in your own words for each term in the table below. For more information on this Reading Strategy, see the Reading and Study Skills in the Skills and Reference Handbook at the end of your textbook.

<table>
<thead>
<tr>
<th>Properties of Waves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary Term</td>
</tr>
<tr>
<td>Period</td>
</tr>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Wavelength</td>
</tr>
<tr>
<td>Amplitude</td>
</tr>
</tbody>
</table>

Frequency and Period (page 504)

1. Is the following sentence true or false? A periodic motion repeats at regular time intervals. _______________

2. The time required for one cycle, a complete motion that returns to its starting point, is called the _______________. Circle the correct answer.
   frequency  period  wavelength

3. The number of complete cycles in a given period of time is the _______________ of a periodic motion.

Wavelength (page 505)

4. The distance between a point on one wave and the same point on the next cycle of the wave is called _______________. Circle the correct answer.
   frequency  period  wavelength
Chapter 17   Mechanical Waves and Sound

5. Circle the letter of the correct answer. How is wavelength determined for a longitudinal wave?
   a. Measure the distance between adjacent rarefactions.
   b. Measure the distance between adjacent crests.
   c. Measure the distance between adjacent troughs.

Wave Speed (pages 505–506)

6. Write a formula you can use to determine the speed of a wave.

7. Is the following sentence true or false? The speed of a wave equals its wavelength divided by its period.

8. Circle the letter of the sentence that tells how wavelength is related to frequency for a wave traveling at a constant speed.
   a. Wavelength is directly proportional to frequency.
   b. Wavelength is inversely proportional to frequency.
   c. A wave with a higher frequency will have a longer wavelength.

Amplitude (page 507)

9. What is the amplitude of a wave?

Questions 10–13 refer to the figure below.

10. The type of waves shown are ________________.

11. Add arrows to the figure to indicate the amplitude of each wave. Which wave has the greater amplitude? ________________

12. Which wave shown has more energy? ________________

13. Add an arrow to indicate one wavelength on wave B.