Characteristics of Waves

Multiple Choice

Write the letter of the correct answer.

___ 1. Waves are caused by
   a. mediums.
   b. vibrations.
   c. reflections.

___ 2. Waves that move matter back and forth are called
   a. transverse waves.
   b. longitudinal waves.
   c. medium waves.

___ 3. A wave with a large amplitude has a lot of
   a. vibrations.
   b. speed.
   c. energy.

___ 4. The number of waves that go by in a certain amount of time is known as
   a. frequency.
   b. wavelength.
   c. speed.

___ 5. Speed, frequency, and wavelength are related by the following mathematical formula:
   a. Wavelength = Speed × Frequency.
   b. Speed = Wavelength × Frequency.
   c. Frequency = Speed × Wavelength.

___ 6. Refraction happens when a wave
   a. enters a new medium at an angle.
   b. hits a surface it cannot pass through.
   c. goes through a hole in a barrier.

___ 7. When a wave moves around a barrier, the wave
   a. bends and spreads out.
   b. travels in a straight line.
   c. bounces back from the barrier.
Characteristics of Waves • Adapted Test

8. Destructive interference happens when two waves
   a. change their speed and bend.
   b. meet and make a wave with a smaller amplitude.
   c. go around a barrier.

9. Waves caused by earthquakes are known as
   a. frequency waves.
   b. standing waves.
   c. seismic waves.

10. Scientists measure earthquake waves with a
    a. meter stick.
    b. seismograph.
    c. balance.

Completion

Read the words in the box. In each sentence below, fill in one of the words.

<table>
<thead>
<tr>
<th>surface</th>
<th>mechanical</th>
<th>standing</th>
</tr>
</thead>
<tbody>
<tr>
<td>wavelength</td>
<td>tsunami</td>
<td>speed</td>
</tr>
</tbody>
</table>

11. Waves that require a medium to travel through are called _________________ waves.

12. The basic properties of waves are amplitude, wavelength, frequency, and _________________.

13. The distance a wave travels before it starts to repeat is its _________________.

14. Waves that seem to be standing still are known as _________________ waves.

15. Types of seismic waves are P waves, S waves, and _________________ waves.
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**True or False**
*If a statement is true, write true. If it is false, write false.*

____ 16. A wave transfers matter from one place to another.

____ 17. The frequency of waves is measured in Hertz.

____ 18. Only mechanical waves obey the law of reflection.

____ 19. Interference changes the speed of waves.

____ 20. Tsunamis are caused by earthquakes.

**Using Science Skills**
*The diagram below shows a wave. Use the diagram to answer questions 21, 22, and 23.*

![Diagram of a wave](image)

____ 21. **Classifying** What type of wave is shown in the diagram?
   a. transverse
   b. longitudinal
   c. surface

____ 22. **Interpreting Diagrams** What is the amplitude of the wave?
   a. 20 meters
   b. 10 meters
   c. 5 meters

____ 23. **Interpreting Diagrams** What is the wavelength of the wave?
   a. 20 meters
   b. 10 meters
   c. 5 meters
Using Science Skills
The diagram below shows two waves meeting. Use the diagram to answer questions 24 and 25.

24. Classifying What type of wave interaction is shown in the diagram?
   a. refraction
   b. diffraction
   c. interference

25. Predicting What will happen to the amplitude of the waves when the two high points meet?
   a. It will be smaller.
   b. It will be bigger.
   c. It will stay the same.