

Short Answer

13.1 Types of Waves 43.

Give an example of a non-mechanical wave.

- a. A radio wave is an example of a nonmechanical wave.
- b. A sound wave is an example of a nonmechanical wave.
- c. A surface wave is an example of a nonmechanical wave.
- d. A seismic wave is an example of a nonmechanical wave.

44.

How is sound produced by an electronic speaker?

- a. The cone of a speaker vibrates to create small changes in the temperature of the air.
- b. The cone of a speaker vibrates to create small changes in the pressure of the air.
- c. The cone of a speaker vibrates to create small changes in the volume of the air.
- d. The cone of a speaker vibrates to create small changes in the resistance of the air.

45.

What kind of wave is thunder?

- a. Transverse wave
- b. Pulse wave
- c. R-wave
- d. P-wave

46.

Are all ocean waves perfectly sinusoidal?

- a. No, all ocean waves are not perfectly sinusoidal.
- b. Yes, all ocean waves are perfectly sinusoidal.

47.

What are orbital progressive waves?

- a. Waves that force the particles of the medium to follow a linear path from the crest to the trough
- b. Waves that force the particles of the medium to follow a circular path from the crest to the trough
- c. Waves that force the particles of the medium to follow a zigzag path from the crest to the trough
- d. Waves that force the particles of the medium to follow a random path from the crest to the trough

48.

Give an example of orbital progressive waves.

- a. light waves
- b. ocean waves
- c. sound waves
- d. seismic waves

13.2 Wave Properties: Speed, Amplitude, Frequency, and Period 49.

What is the relation between the amplitude and height of a transverse wave?

- a. The height of a wave is half of its amplitude.
- b. The height of a wave is equal to its amplitude.
- c. The height of a wave is twice its amplitude.
- d. The height of a wave is four times its amplitude.

50.

If the amplitude of a water wave is 0.2 m and its frequency is 2 Hz, how much distance would a bird sitting on the water's surface move with every wave? How many times will it do this every second?

- a. The bird will go up and down a distance of 0.4 m. It will do this twice per second.
- b. The bird will go up and down a distance of 0.2 m. It will do this twice per second.
- c. The bird will go up and down a distance of 0.4 m. It will do this once per second.
- d. The bird will go up and down a distance of 0.2 m. It will do this once per second.

51.

What is the relation between the amplitude and the frequency of a wave?

- a. The amplitude and the frequency of a wave are independent of each other.
- b. The amplitude and the frequency of a wave are equal.
- c. The amplitude decreases with an increase in the frequency of a wave.
- d. The amplitude increases with an increase in the frequency of a wave.

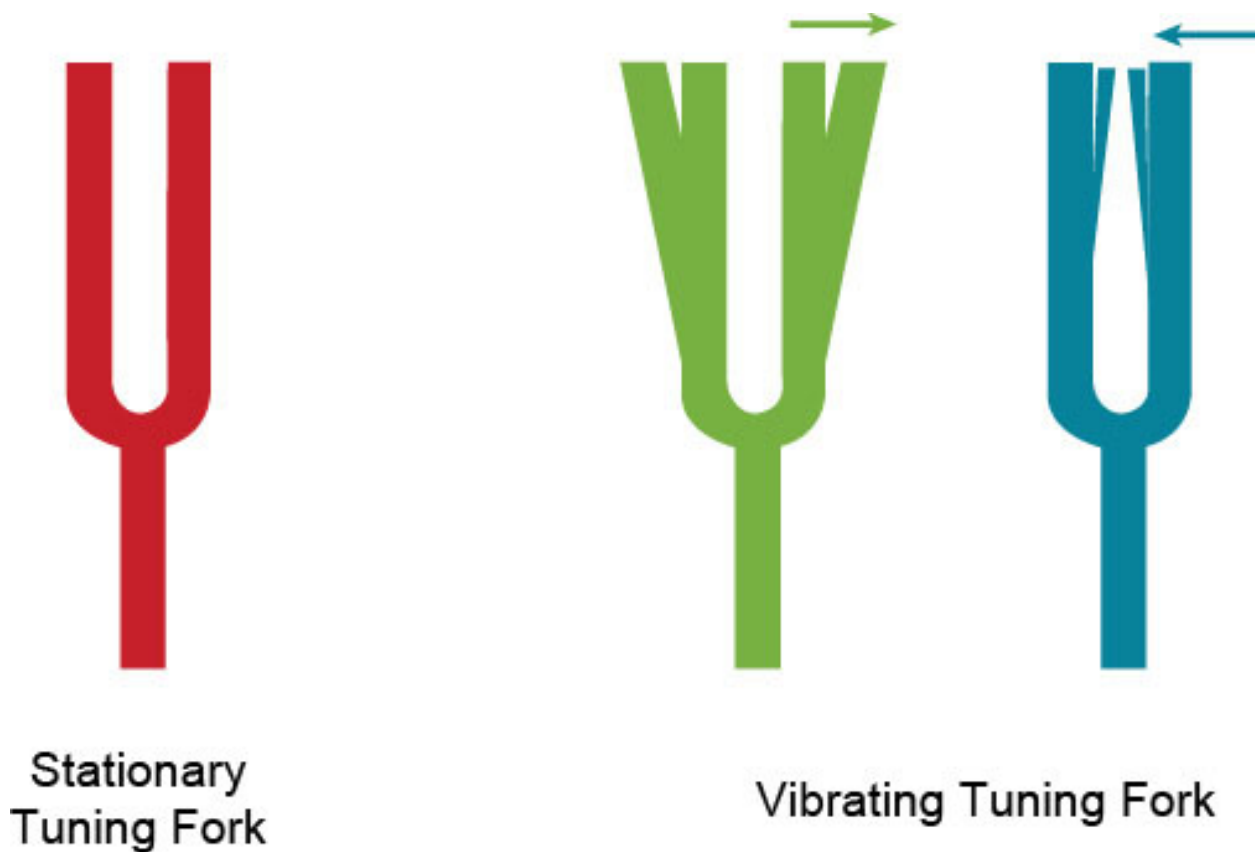
52.

What is the relation between a wave's energy and its amplitude?

- a. There is no relation between the energy and the amplitude of a wave.
- b. The magnitude of the energy is equal to the magnitude of the amplitude of a wave.
- c. The energy of a wave increases with an increase in the amplitude of the wave.

- d. The energy of a wave decreases with an increase in the amplitude of a wave.

53.



(credit: modification of work by lineage, StackExchange)

A tuning fork is an instrument that produces a note (sound) with a specific frequency. The image shows a stationary and a vibrating tuning fork.

Make a claim about the nature of sound waves produced by the fork.

- a. They are transverse.
- b. They are longitudinal.
- c. They are both transverse and longitudinal.
- d. They are neither transverse nor longitudinal.

54.

A water wave propagates in a river at 6 m/s. If the river moves in the opposite direction at 3 m/s, what is the effective velocity of the wave?

- a. 3 m/s
- b. 6 m/s
- c. 9 m/s
- d. 18 m/s

13.3 Wave Interaction: Superposition and Interference 55.

Is this statement true or false? Spherical waves can superimpose.

- a. True
- b. False

56.

Is this statement true or false? Waves can superimpose if their frequencies are different.

- a. True
- b. False

57.

When does pure destructive interference occur?

- a. When two waves with equal frequencies that are perfectly in phase and propagating along the same line superimpose.
- b. When two waves with unequal frequencies that are perfectly in phase and propagating along the same line superimpose.
- c. When two waves with unequal frequencies that are perfectly out of phase and propagating along the same line superimpose.
- d. When two waves with equal frequencies that are perfectly out of phase and propagating along the same line superimpose.

58.

Is this statement true or false? The amplitude of one wave is affected by the amplitude of another wave only when they are precisely aligned.

- a. True
- b. False

59.

Why does a standing wave form on a guitar string?

- a. due to superposition with the reflected waves from the ends of the string
- b. due to superposition with the reflected waves from the walls of the room
- c. due to superposition with waves generated from the body of the guitar

60.

Is the following statement true or false? A standing wave is a superposition of two identical waves that are in phase and propagating in the same direction.

- a. True
- b. False

61.

Why do water waves traveling from the deep end to the shallow end of a swimming pool experience refraction?

- a. Because the pressure of water at the two ends of the pool is same
- b. Because the pressures of water at the two ends of the pool are different
- c. Because the density of water at the two ends of the pool is same
- d. Because the density of water at the two ends of the pool is different

62.

Is the statement true or false? Waves propagate faster in a less dense medium if the stiffness is the same.

- a. True
- b. False