

Conceptual Physics
Chapter 25 Review Questions

Name: _____

- 1) You dip your finger repeatedly into water and make waves. If you dip your finger more frequently, what happens to the wavelength of the waves? What happens to the frequency?

- 2) A weight on the end of a spring bobs up and down one complete cycle every 5 seconds. What is its frequency ?

- 3) A cork floating in the ocean oscillates up and down three complete cycles in 1 second as an ocean wave passes by. The wave's wavelength is 2 meters. What is the wave's speed?

- 4) Some of a wave's energy is always being dissipated as heat. In time, what quantity of the wave will this reduce?

- 5) Radio waves travels at the speed of light, 300,000 km/s. Calculate the wavelength of a radio wave received at 91.3 megahertz.

- 6) The period of an ocean wave is 7 seconds. What is the wave's frequency?

- 7) A certain ocean wave has a frequency of 2 hertz and a wavelength of 3 meters. What is the wave's speed?

- 8) As the sound of a car's horn passes and recedes from you, what happens to the pitch of the horn? The speed of the wave?

9) When two or more waves are at the same place at the same time, what is the term used for the resulting effect?

10) A wave has 4 up and 4 down cycles each second. The wave travels an average distance of 8 meters in 1 second. What is the frequency of the wave? The wavelength of the wave? The wave speed?

11) What will happen to the period of a pendulum when it is taken from sea level to the top of a high mountain?

12) An aircraft that flies faster than the speed of sound is said to be _____.

13) A wave created by shaking a rope up and down is called a _____.

14) When does the Doppler effect occur- when a source of sound moves away/towards /stationary with respect to the listener?

15) The source of all wave motion is a _____.

16) The amplitude of a particular wave is 0.5 meters. What is the distance between a wave crest and a trough?

17) What is the frequency of the minute hand of a clock? The second hand of a clock?

18) A weight on the end of a spring bobs up and down one complete cycle every 5 seconds. What is its period?

19) What is the difference between a transverse wave and a longitudinal wave?

20) When a sound source moves away from you, what happens to the frequency? The wave speed?

21) Which of these can create standing waves?

A) by blowing across the top of a soda bottle.

B) on strings of musical instruments.

C) in organ pipes.

22) Define these terms:

A) velocity.

B) period.

C) wavelength.

D) frequency.

E) amplitude.

23) If you halve the frequency of a vibrating object, what happens to its period?

24) What is a sonic boom? How can it be reduced?

25) What is the Doppler effect? What conditions will cause the frequency sound change?

26) A child swings back and forth on a playground swing. If the child stands rather than sits, will the period of the swing change? If it does, will it increase or decrease?

27) A leaf on a pond oscillates up and down three complete cycles each second as a water wave passes. What is the wave's frequency?

28) At what point along the wave can you touch a standing wave on a rope without disturbing the wave?

29) Suppose a bug is jiggling up and down and swimming towards you at the same time. How does the frequency of the waves reaching you compare to the frequency at which the bug is emitting waves?

30) Classify the following as transverse or longitudinal wave.

A) radio wave.

B) sound wave.

C) infrared light

D) visible light

31) Suppose a simple pendulum is suspended in an elevator. When the elevator is accelerating downward, what happens to the period of the pendulum?

31) What are the SI units of the following?

A) speed of a wave

B) period

C) wavelength.

D) frequency

E) amplitude

32) A skipper on a boat notices wave crests passing the anchor chain every 2 seconds. The skipper estimates the distance between crests at 7 m. What is the speed of the water waves?

33) During a single period, the how far (in terms of wavelengths) does a wave travel?

34) Two waves arrive at the same place at the same time exactly in step with each other. Each wave has an amplitude of 4 m. What is the amplitude of the resulting wave?