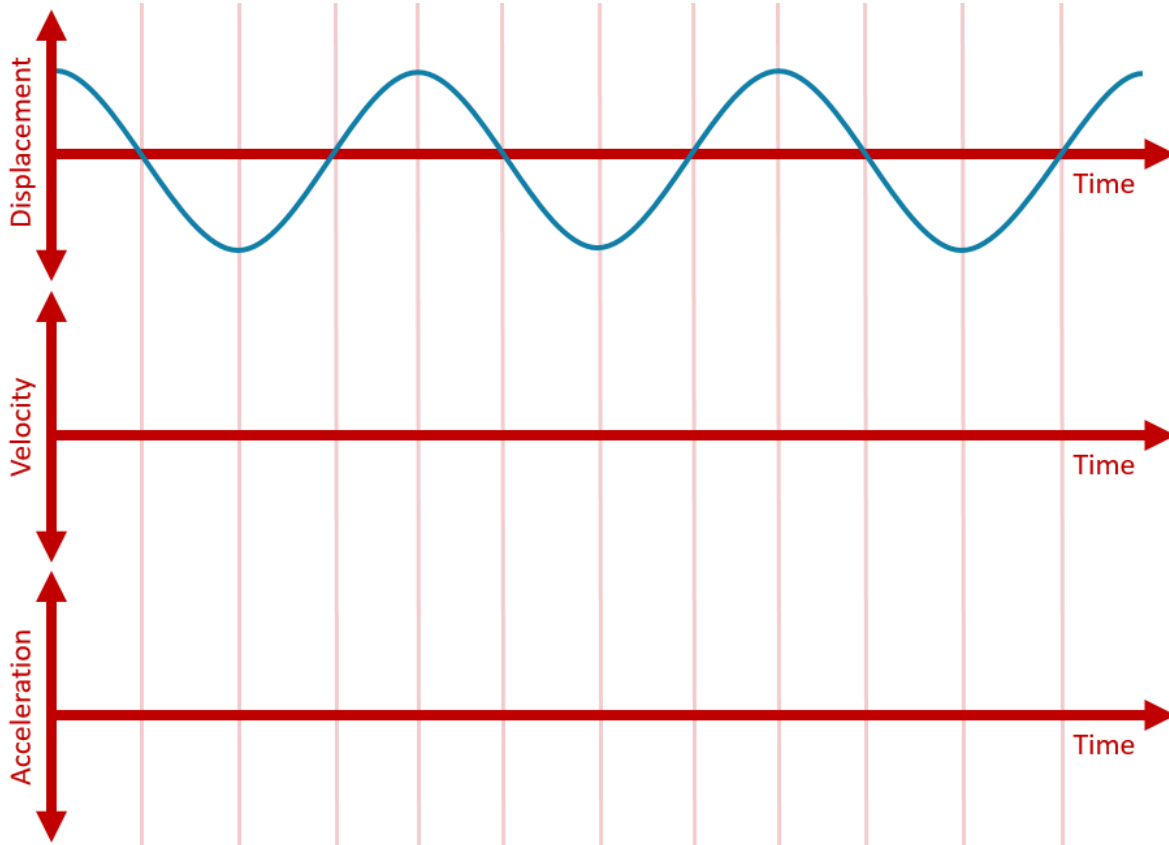


7.1 | Waves - Sound | Review

Name _____ Period _____

Simple Harmonic Motion

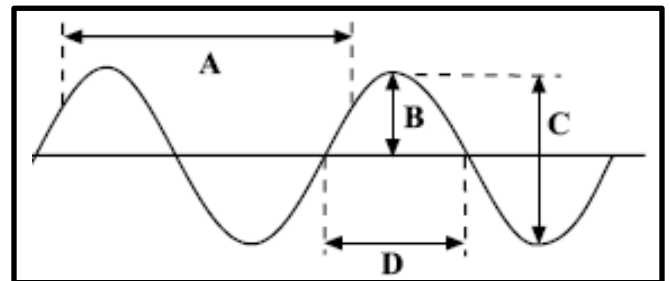
1. Sketch in the shape of the velocity vs time and acceleration vs time graphs for the simple harmonic motion show below.



Wave Properties

2. A wave is a disturbance that transfers _____ through a medium or space
a. matter b. energy c. water d. air

3. In the picture shown to the right, which of the following letters represents the wavelength of a wave?
a. A b. B c. C d. D



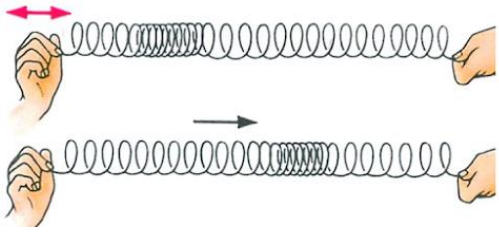
4. In the picture shown to the right, which of the following letters represents the amplitude of a wave?
a. A b. B c. C d. D

5. Which of the following waves **do not** require a medium?
a. ocean b. light c. sound d. none of these

6. You are standing on the beach with your feet in the water and notice that a new wave comes crashing in every 5 seconds, what is the **frequency** of these waves?

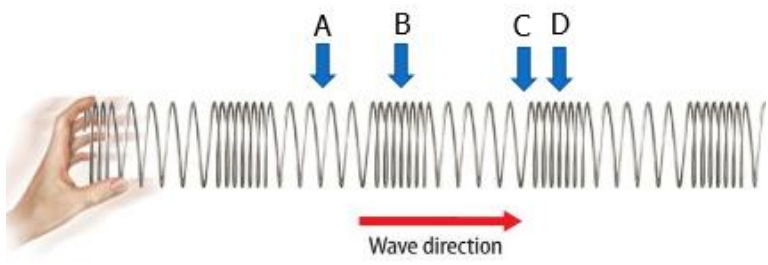
7. The image below shows a student using a slinky to make a wave. The student pushes back and forth sending a wave traveling down the spring. Which type of wave is this?

- a. Superposition b. Refractive c. Transverse d. Longitudinal



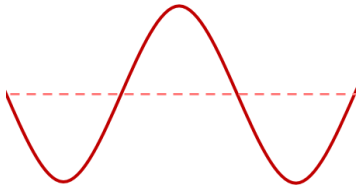
8. In the diagram below, which of the following represent one wavelength?

- a. A → B b. B → C c. B → D d. A → D



9. How many waves are shown in the picture below?

a. 0.5 b. 1 c. 1.5 d. 2 e. 2.5



10. How many complete wavelengths are shown?

a. 2 b. 2.25 c. 2.5 d. 2.75 e. 5

11. What is the period of the wave shown?

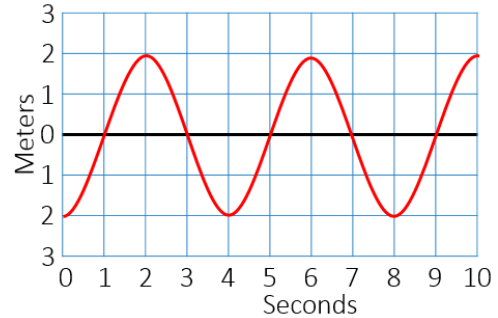
a. 2 s b. 4 s c. 6 s d. 8 s e. 10 s

12. What is the amplitude of the wave shown?

a. 1 m b. 2 m c. 3 m d. 4 m e. 5 m

13. What is the frequency of the wave shown?

a. 0.25 Hz b. 2 Hz c. 2.5 Hz d. 4 Hz e. 10 Hz



14. A wave with a frequency of 0.5 Hz and a speed of 10 m/s has a wavelength of

15. As the frequency of a sound wave traveling through air doubles, and the wave speed remains constant, what happens to the wavelength?

- a. halved b. doubled c. tripled d. squared

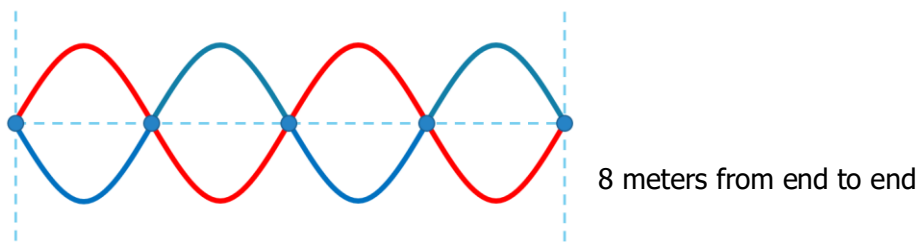
16. Which of these mediums will a sound wave generally travel faster in?

- a. Gas b. Liquid c. Solid d. Same speed in all

17. A wave has a frequency of 50 Hz and a wavelength of 10 m. What is the speed of the wave?

18. Twelve, 0.50 m waves, pass an observer in 3 seconds. What is the speed of the wave?

Directions: Use the diagram of the standing wave below for the following questions



19. What is the number of nodes found in the standing wave shown above?
a. 1 b. 2 c. 3 d. 4 e. 5
20. What is the **wavelength** of the standing wave shown above?
a. 2 m b. 4 m c. 6 m d. 8 m
21. What is the total number of wavelengths for the standing wave shown above?
a. 0.5 b. 1 c. 1.5 d. 2 e. 2.5

Sound

22. The note produced on a guitar string of length 57 cm produces a first harmonic wave with a frequency of 146 Hz. 4
- a. What is the speed of the wave traveling on that string. Draw a picture and solve.
- b. What is the frequency of the second harmonic on that same string if the wave speed is the same as part a? Draw a picture and solve

23. How long does a closed tube need to be to resonate a 0.12 m wavelength at its 3rd resonant position? Draw the picture and answer.

24. What is the expected frequency for the first harmonic of a 25 cm open hose that is twirled over your head? Assume a speed of sound of 345 m/s.

25. Two loudspeakers, L_1 and L_2 , emit a coherent signal of 425 Hz, is the person shown in the picture below experiencing a maximum or minimum location? (Assume a speed of sound of 340 m s^{-1})

