1. Stan and Anna are conducting a slinky experiment. They are studying the possible affect of several variables upon the speed of a wave in a slinky. Their data table is shown below. Fill in the blanks in the table, analyze the data, and answer the following questions.

Medium	Wavelength	Frequency	Speed
Zinc, 1-in. dia. coils	1.75 m	2.0 Hz	
Zinc, 1-in. dia. coils	0.90 m	3.9 Hz	
Copper, 1-in. dia. coils	1.19 m	2.1 Hz	
Copper, 1-in. dia. coils	0.60 m	4.2 Hz	
Zinc, 3-in. dia. coils	0.95 m	2.2 Hz	
Zinc, 3-in. dia. coils	1.82 m	1.2 Hz	

- As the wavelength of a wave in a uniform medium increases, its speed will _____.
 a. decrease b. increase c. remain the same



- 4. A buoy bobs up and down in the ocean. The waves have a wavelength of 2.5 m, and they pass the buoy at a speed of 4.0 m/s. What is the frequency of the waves?
- 5. Waves in a lake are 6 m apart and pass a person on a raft every 2 s. What is the speed of the waves?
- 6. One of the largest organ pipes is in the auditorium organ in the convention hall in Atlantic City, New Jersey. The pipe is 38.6 ft long and produces a sound with a wavelength of about 10.6 m. If the speed of sound in air is 346 m/s, what is the frequency of this sound?
- 7. A wave with a frequency of 60.0 Hz travels through vulcanized rubber with a wavelength of 0.90 m. What is the speed of this wave?

- 8. A dolphin can typically hear sounds with frequencies up to 150 kHz. What is the speed of sound in water if a wave with this frequency has a wavelength of 1.0 cm?
- 9. Red light has a longer wavelength than violet light. Which has the greater frequency?
- 10. Noah stands 170 meters away from a steep canyon wall. He shouts and hears the echo of his voice one second later. What is the speed of the wave?
- 11. The time required for the sound waves (v = 340 m/s) to travel from the tuning fork to point A is _____.



- 12. A wave travelling on a string has a wavelength of 0.10 m and a frequency of 7 Hz. Calculate the speed of the wave.
- 13. The water waves below are traveling along the surface of the ocean at a speed of 2.5 m/s and splashing periodically against Wilbert's perch. Each adjacent crest is 5 meters apart: The crests splash Wilbert's feet upon reaching his perch. How much time passes between each successive drenching?



- Bonus: An electromagnetic wave moving through free space at 3×10^8 m/s has a frequency of 4.62×10^{14} Hz. What is the wavelength of this wave?
- 14. The following two graphs represent data from the same wave travelling due west through a particular medium. From the graphs determine: (a) the wavelength; (b) the amplitude; (c) and the frequency.

