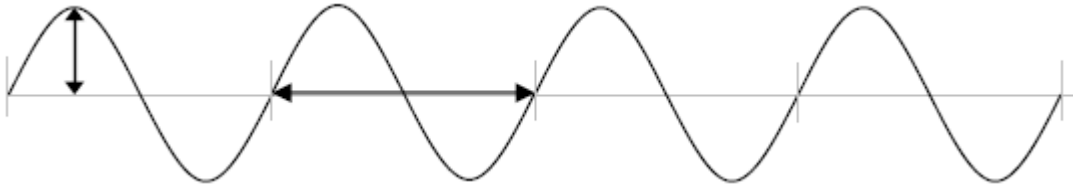
Name: _____ Date: _____ Period: _____

Wave Worksheet

One full wave (cycle) Wave train – two or more waves



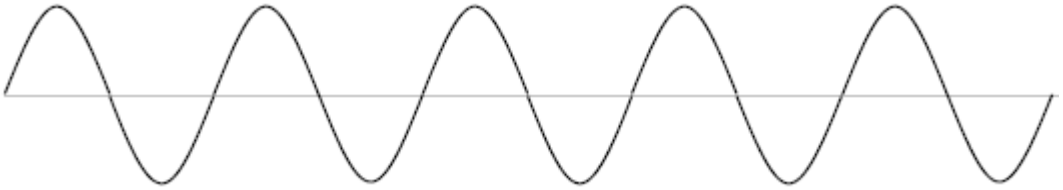
Amplitude – measures the energy of a transverse wave

- measured from the resting position to the top of a crest or the bottom of a trough (see vertical arrow)

Wavelength – length of a single wave cycle (horizontal arrow double sided arrow)
Frequency-# of waves that pass a point in a given amount of time
Speed = wavelength x frequency

The time from the beginning to the end of the wave train in each situation is 1 second.

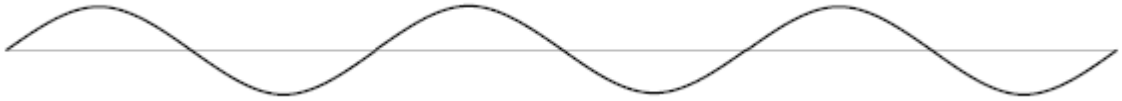
Wave 1



a) How many waves are there in this wave train? _____

b) Wavelength _____ cm c) Amplitude _____ cm d) frequency _____ Hz e) speed _____ cm/s

Wave 2



a) How many waves are there in this wave train? _____

b) Wavelength _____ cm c) Amplitude _____ cm d) frequency _____ Hz e.) speed _____ cm/s

Problems:

1. What is the wavelength of a sound wave with a frequency of 50 Hz? The speed of sound is 342 m/s.

2. A sound wave in a steel rail has a frequency of 620 Hz and a wavelength of 10.5 m. What is the speed of sound in steel?

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3. What is the velocity of a wave with a frequency of 760 Hz and a wavelength of 0.45 m?

4. What is the frequency of a pendulum that is moving at 30 m/s with a wavelength of 0.35 m?

5. What is the wavelength of a sound wave moving at 340 m/s with a frequency of 256 Hz?

6. A wave with a frequency of 14 Hz has a wavelength of 3 meters. At what speed will this wave travel?

7. The speed of a wave is 65 m/s. If the wavelength is 0.8 meters, what is the frequency of the wave?

8. A wave has a frequency of 46 Hz and a wavelength of 1.7 meters. What is the speed of this wave?

9. A wave traveling at 230 m/s has a wavelength of 2.1 meters. What is the frequency of this wave?

10. A wave with a frequency of 500 Hz is traveling at a speed of 200 m/s. What is the wavelength?

11. A wave has a frequency of 540 Hz and is traveling at 340 m/s. What is its wavelength?

12. A wave has a wavelength of 125 meters is moving at a speed of 20 m/s. What is its frequency?

13. A wave has a frequency of 900 Hz and a wavelength of 200 m. At what speed is this wave traveling?

14. A wave has a wavelength of 0.5 meters and a frequency of 120 Hz. What is the wave's speed?