Waves Worksheet #2
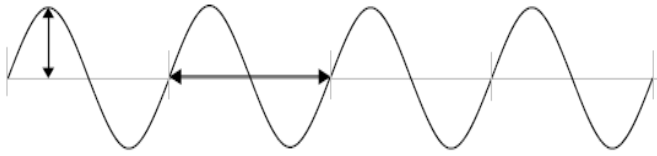
Name:

Unit:_____   Lesson:_____

> **Amplitude** – Height of wave. Measured from the equilibrium 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). Measure distance between 2 identical points on consecutive waves.
> **Frequency**-# of waves that pass a point in a given amount of time **Units=Hz=waves/second**
> **Speed** = wavelength x frequency
> ***The time from the beginning to the end of the wave in each situation is 1 second.**

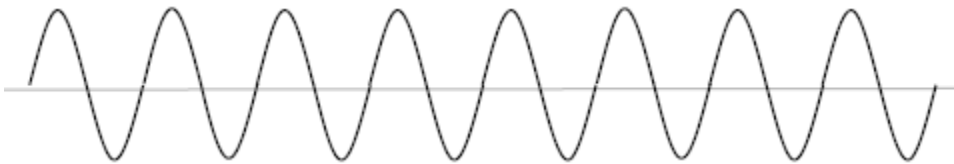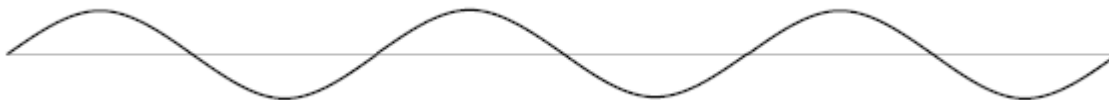**Wave 1**   **1 second**
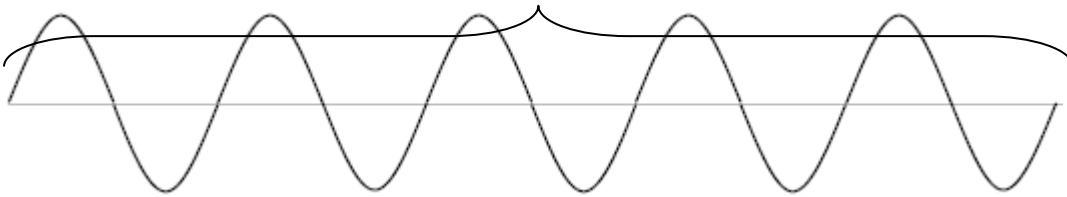
a) How many wave cycles are completed in this diagram? _____

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

Wave 2

a) How many wave cycles are completed in this diagram? _____

b) Wavelength _____ cm   c) Amplitude _____ cm   d) frequency _____ Hz   e) speed _____ cm/s
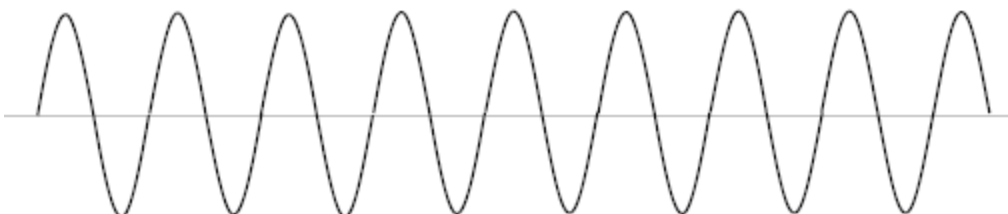
Wave 3

a) How many wave cycles are completed in this diagram? _____

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

Wave 4

a) How many wave cycles are completed in this diagram? _____

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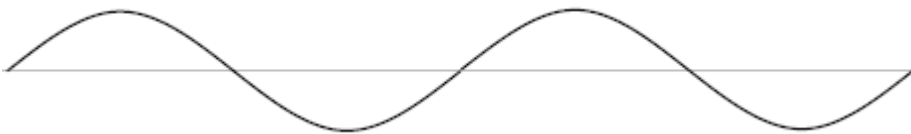
Name:

Unit:_____   Lesson:_____

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

a) How many wave cycles are completed in this diagram? _____

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

Wave 6
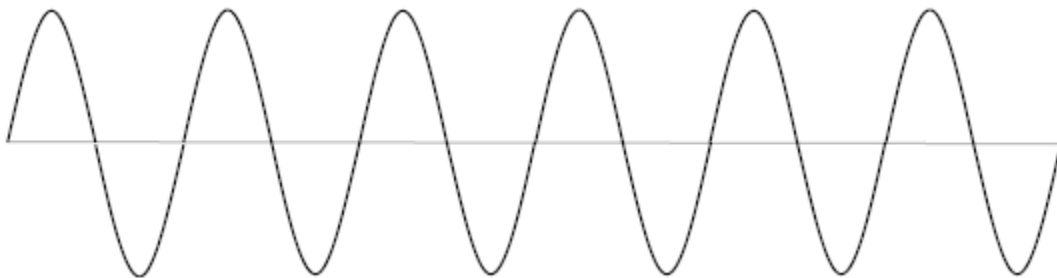
a) How many wave cycles are completed in this diagram? _____

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

Wave 7
If this entire wave train is 30 meters long what is the wavelength of this wave? _____

Challenge Problems: (Show equation, work, final answer with correct units.)
1. What is the wavelength of a sound wave with a frequency of 50 Hz? (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?

3. Determine the frequency of a microwave 6.0 cm in length. (A microwave is an electromagnetic wave. It travels through space at a speed of 3.0×10^{8} m/s)

4. What is the period of the microwave in problem 3?