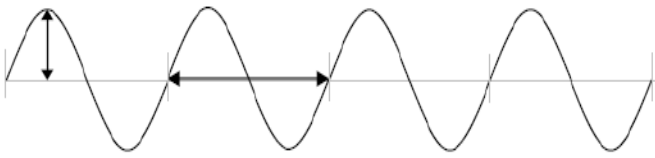


# Waves Worksheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_



**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.

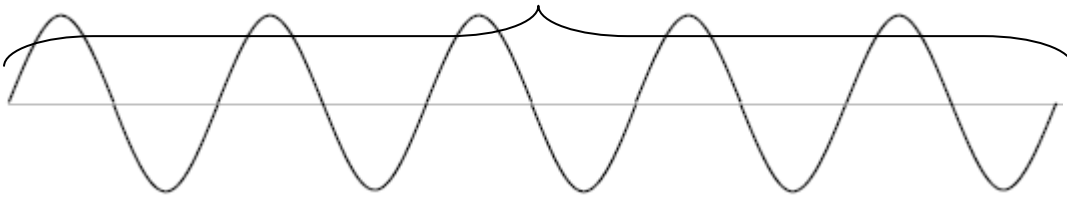
**Frequency** – # of waves that pass a point in a given amount of time **Units=Hz=waves/second**

**Speed** = wavelength x frequency

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

## Wave 1

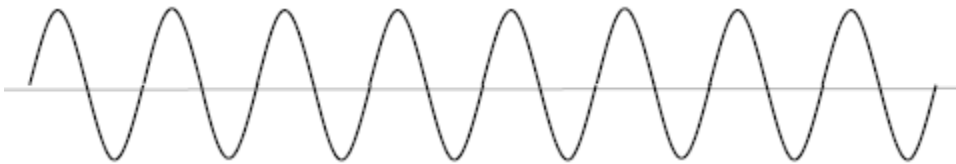
1 second



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

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

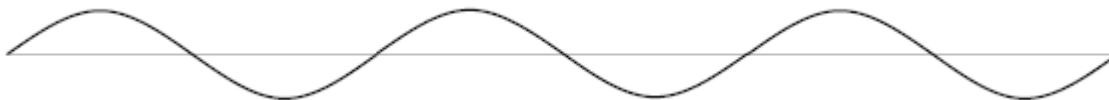
## Wave 2



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

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

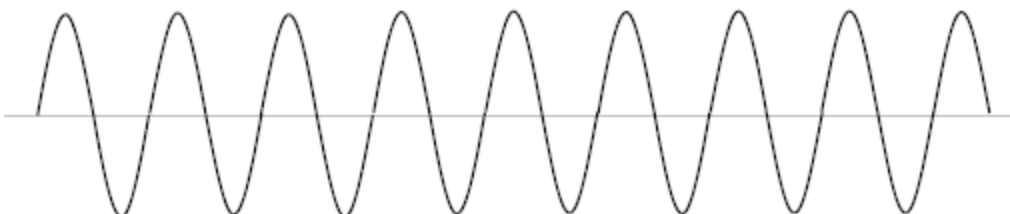
## Wave 3



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? \_\_\_\_\_

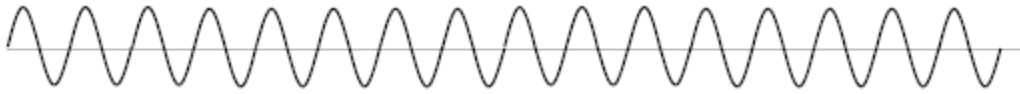
# Waves Worksheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

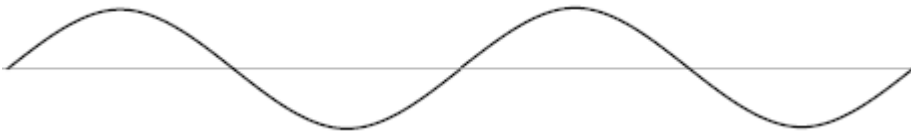
b) Wavelength \_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_ cm   d) frequency \_\_\_\_\_ Hz   e.) speed \_\_\_\_\_ cm/s



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

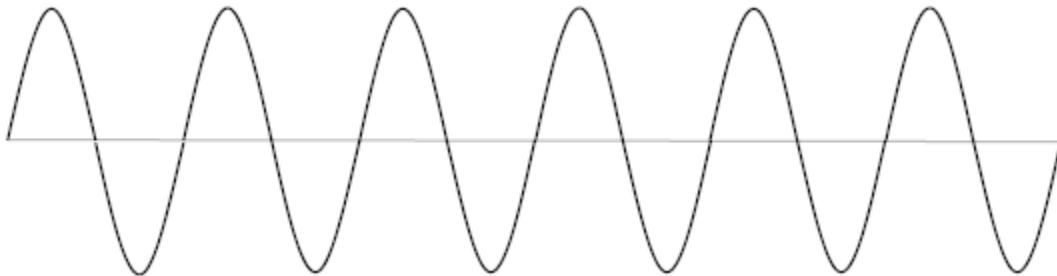


a) How many wave cycles are completed in this diagram? \_\_\_\_\_

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  $3.0 \times 10^8$  m/s)
4. What is the period of the microwave in problem 3?