**WAVES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Wave | Wavelength $λ$ | PeriodT | Frequencyf | AmplitudeA |
| Peak | Trough | $$T=\frac{change in time}{number ofcycles}$$ | $$f=\frac{number of cycles}{change in time}$$ | $$v=fλ$$ |

1. The highest point on a wave is the \_\_\_\_\_\_\_\_\_\_, while the lowest point is the \_\_\_\_\_\_\_\_\_\_.

2. The \_\_\_\_\_\_\_\_\_\_ of a wave is a measure of the amount of energy it carries.

3. The distance from one peak to the next peak is the \_\_\_\_\_\_\_\_\_\_.

4. The \_\_\_\_\_\_\_\_\_\_ is a measure of the number of waves that pass a point in a given amount of time.

5. Draw the illustration to the right in your notebook and label each part.

 a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 d. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Use the five illustrations of waves drawn below to answer the following questions:



1. Waves P and Q have the same \_\_\_\_\_\_\_\_\_\_, but wave P has twice the \_\_\_\_\_\_\_\_\_\_ of wave Q.
2. Waves Q and R have the same \_\_\_\_\_\_\_\_\_\_, but wave R has twice the \_\_\_\_\_\_\_\_\_\_ of wave Q.
3. Wave \_\_\_\_\_\_\_\_\_\_ shows a steady frequency but changing amplitude.
4. Wave \_\_\_\_\_\_\_\_\_\_ shows steady amplitude but a changing frequency.
5. Waves \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ have a low amplitude and a steady frequency.

 7. Draw the diagram to the right in your notebook. Label the parts of the wave.

1. Is this wave transverse or longitudinal?
2. Letter H represents a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and
letter I represents a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Letter G represents a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

8. In what type of wave is the vibration perpendicular to the direction of travel of the wave? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. What type of wave vibrates parallel to the direction of travel? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. What type of wave is produced when you move one end of a horizontal spring up and down?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. What type of wave has a wavelength? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Obtain a ruler and determine the wavelength of the wave to the right.

 Wavelength = \_\_\_\_\_\_\_\_\_\_

For Questions 13 through 18.The time from the beginning to the end of each diagram of waves is 1 second.

**13. Diagram 1**


a) How many wavelengths are in the diagram above? \_\_\_\_\_

t = 1s

b) Wavelength \_\_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_\_\_ cm f) Period \_\_\_\_\_\_\_\_\_\_\_ s

d) frequency \_\_\_\_\_\_\_\_ Hz e) speed of wave\_\_\_\_\_\_\_\_cm/s

**14. Diagram 2**


t = 1s

a) How many complete waves are in the diagram above? \_\_\_\_\_

b) Wavelength \_\_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_\_\_ cm f) Period \_\_\_\_\_\_\_\_\_\_\_ s

d) frequency \_\_\_\_\_\_ Hz e) speed of wave\_\_\_\_\_\_\_\_cm/s

**15. Diagram 3**


a) How many wavelengths are in the diagram above? \_\_\_\_\_

b) Wavelength \_\_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_\_\_ cm f) Period \_\_\_\_\_\_\_\_\_\_\_ s

t = 1s

d) frequency \_\_\_\_\_\_ Hz e) speed of wave\_\_\_\_\_\_\_\_cm/s

**16. Diagram 4**

a) How many wavelengths are in the diagram above? \_\_\_\_\_

b) Wavelength \_\_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_\_\_ cm

t = 1s

d) frequency \_\_\_\_\_\_ Hz e) speed of wave\_\_\_\_\_\_\_\_cm/s f) Period \_\_\_\_\_\_\_\_\_\_\_ s

**17. Diagram 5**

a) How many complete wavelengths are in the diagram above? \_\_\_\_\_

b) Wavelength \_\_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_\_\_ cm f) Period \_\_\_\_\_\_\_\_\_\_\_ s

t = 1s

d) frequency \_\_\_\_\_\_ Hz e) speed of wave\_\_\_\_\_\_\_\_cm/s

**18. Diagram 6**

a) How many complete waves are in the diagram above? \_\_\_\_\_

t = 1s

b) Wavelength \_\_\_\_\_\_ cm   c) Amplitude \_\_\_\_\_\_\_ cm f) Period \_\_\_\_\_\_\_\_\_\_\_ s

d) frequency \_\_\_\_\_\_ Hz e) speed of wave\_\_\_\_\_\_\_\_cm/s