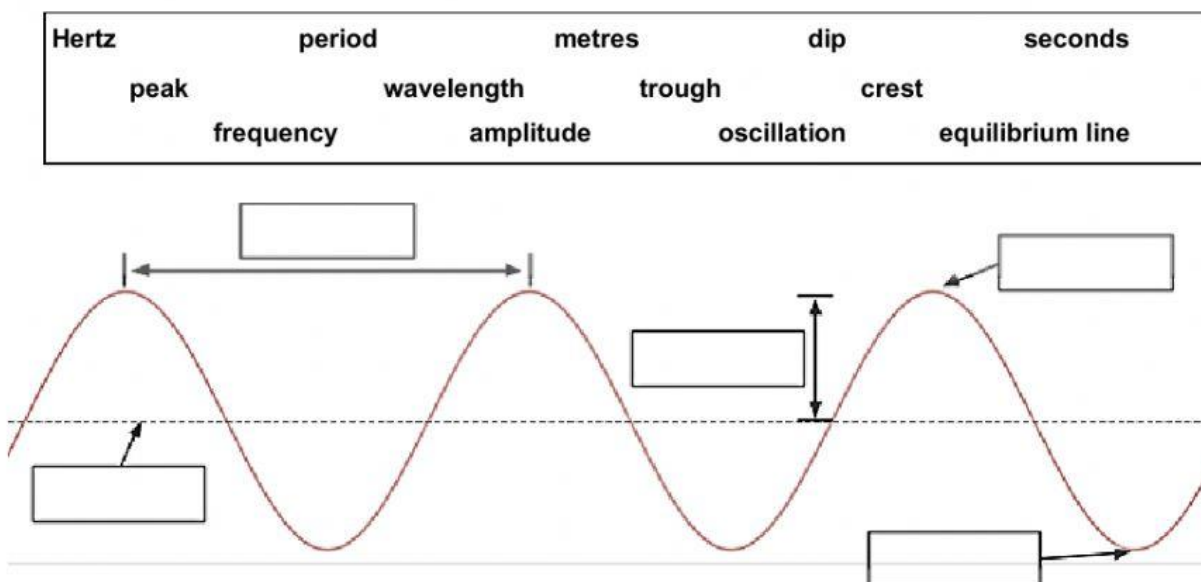


# Properties of Waves

1. Complete the following statements:

- Waves transfer \_\_\_\_\_ without transferring \_\_\_\_\_.
- **Mechanical** waves \_\_\_\_\_ travel through empty space.
- **Electromagnetic** waves \_\_\_\_\_ travel through empty space.
- **Transverse** waves move \_\_\_\_\_ to the direction of the wave.
- **Longitudinal** waves move \_\_\_\_\_ to the direction of the wave.

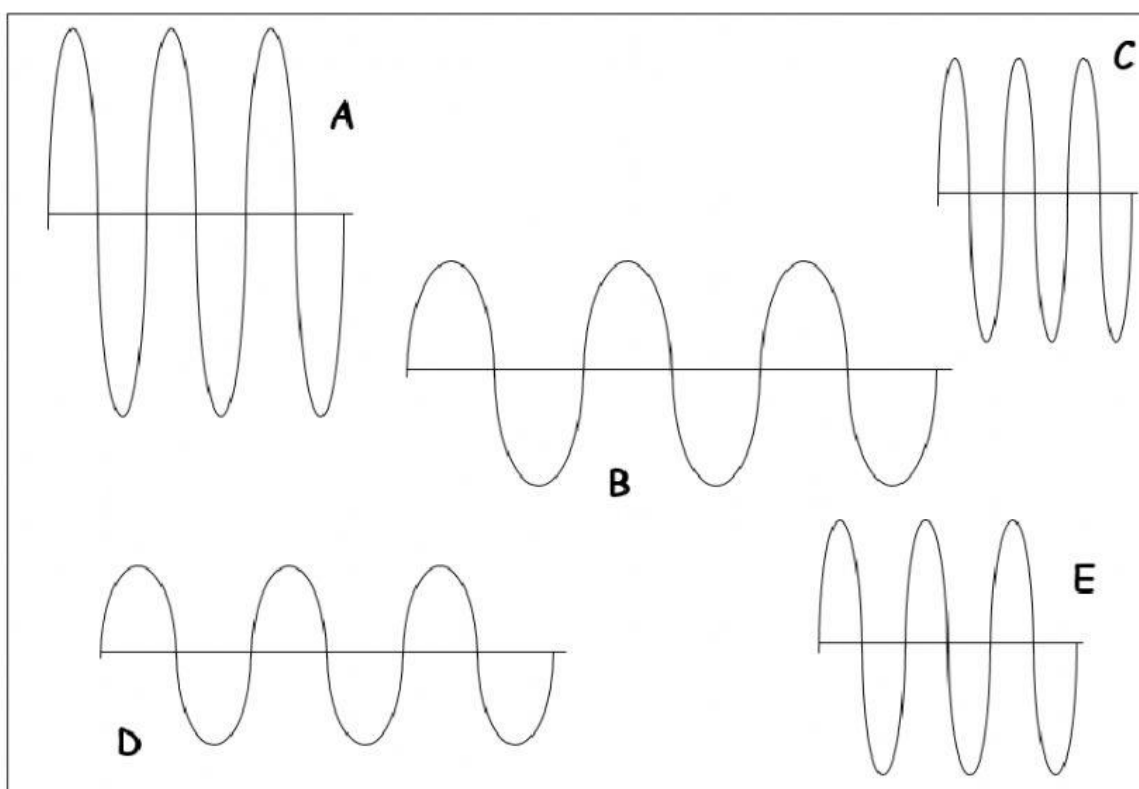
2. Use words in the box to complete the diagram.



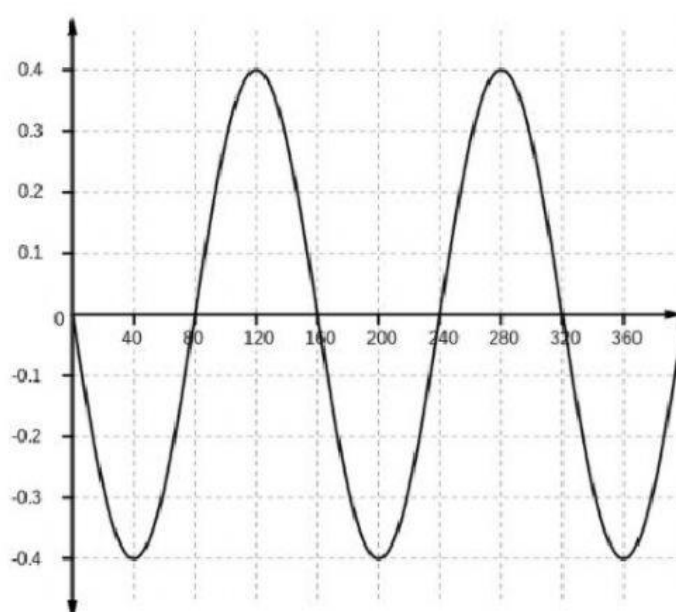
3. Select which property of a wave is being described in each statement.

- \_\_\_\_\_ The top of a wave.
- \_\_\_\_\_ The bottom of a wave.
- \_\_\_\_\_ The number of waves that pass in 1 second.
- \_\_\_\_\_ The time it takes for one wave to pass or complete a cycle.
- \_\_\_\_\_ The maximum height of a wave from the equilibrium line (rest position).
- \_\_\_\_\_ The distance between two consecutive troughs.
- \_\_\_\_\_ Waves that travel perpendicular to the energy movement.
- \_\_\_\_\_ Waves that require a medium to travel through.

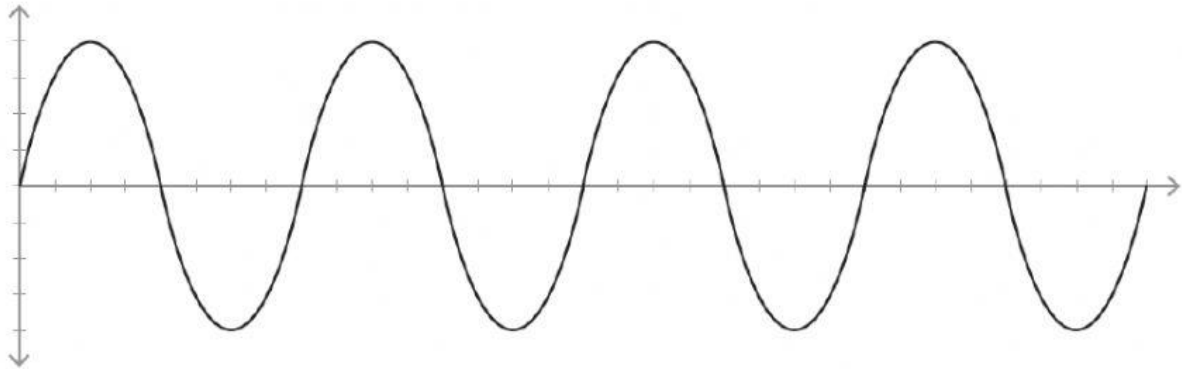
4. Use the following waves to answer the next set of questions. You may need to use a ruler to help!



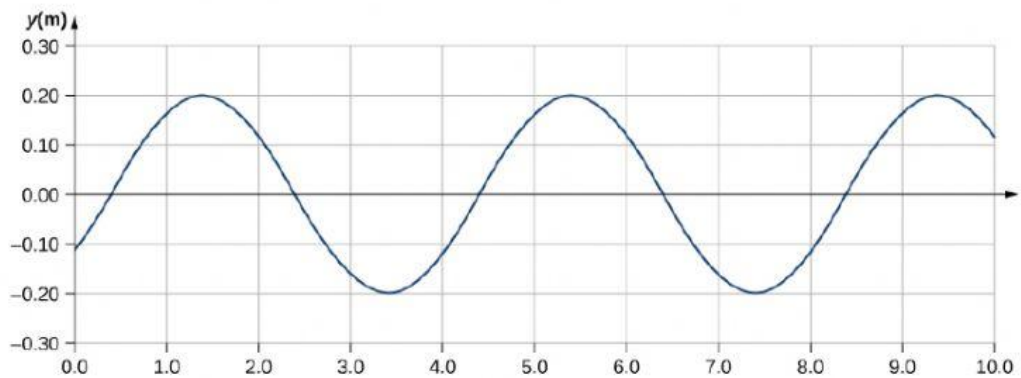
- Which wave has the highest crest?
  - Which wave has the lowest crest?
  - Which wave has the highest trough?
  - Which wave has the lowest trough?
  - Which wave has the shortest wavelength?
  - Which wave has the longest wavelength?
  - Which wave has the highest frequency?
  - Which wave has the lowest frequency?
5. For the wave pictured on the right. Determine the magnitude of the:
- Wavelength:
  - Amplitude:
  - Frequency:
6. If the wavelength of a wave decreased in size, the frequency would ...



7. Use the diagram below to answer the following questions.  
Assume that the scale on both axes is going up by 2.



- a) What is the magnitude of the amplitude of this wave?
  - b) What is the magnitude of one wavelength of this wave?
  - c) How many complete wave cycles are shown in the diagram?
  - d) Would a wave with a wavelength of 8 have a higher or lower frequency?
  - e) Would a wave with an amplitude of 4 have a higher or lower trough?
8. Use the diagram below to answer the following questions.



- a) What is the magnitude of the amplitude of this wave?
- b) What is the magnitude of one wavelength of this wave?
- c) How many complete wave cycles are shown in the diagram?