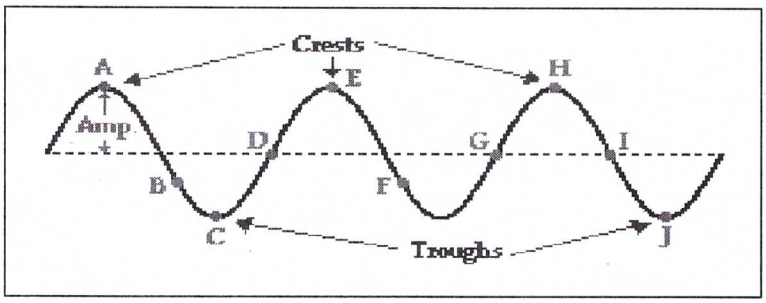
PROBLEM SET
WAVES



ANSWER ALL QUESTIONS

1. A wave on Lake Michigan has a wavelength of 2-cm, and a frequency of 100-Hz. What is its velocity of travel?

2. The velocity of a wave on a rope is 80-cm/s and its wavelength is 40-cm. What is the frequency?

3. The velocity of a wave on a guitar string is 100-m/s and the frequency is 1000-Hz. What is the wavelength of the wave?

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

5. A wave has a velocity of 330-m/s. Its wavelength is 15-m. Calculate the frequency of the wave.

6. A wave has a velocity of 345-m/s. Its frequency is 2050-Hz. Find its wavelength.

7. A ruby-throated humming bird beats its wings at a rate of about 70 wing beats per second.

    a) What is the frequency in Hertz of the sound wave?

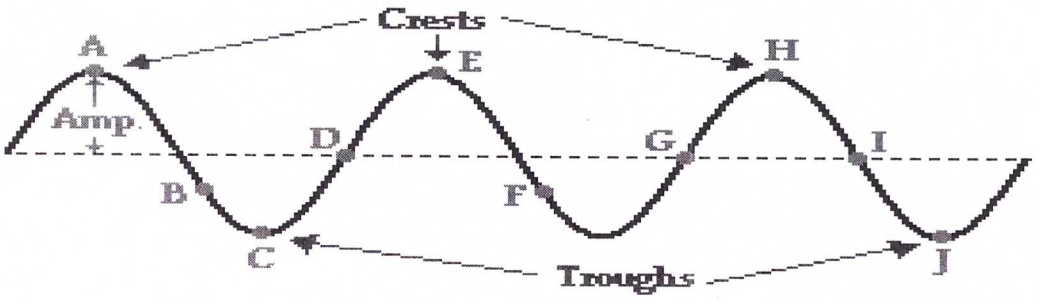
    b) Assuming the sound wave moves with a velocity of 350-m/s, what is the wavelength of the wave?

8. **Consider the diagram below in order to answer questions # a-b.**

    a. The wavelength of the wave in the diagram above is given by letter _____.

    b. The amplitude of the wave in the diagram above is given by letter _____.

9. Indicate the interval which represents one full wavelength.



a. E to H
b. B to D
c. A to H
d. I to G
e. D to F

10. What is the wavelength of a 25-hertz wave traveling at 35-cm/s?

11. How fast does a 500-Hz wave travel if its wavelength is 0.5-m?

12. If the speed of a wave is 1500-m/sec and its frequency is 200-Hz, what is its wavelength?

13. A tuning fork has a frequency of 280-Hz, and the wavelength of the sound produced is 1.5-meters. Calculate the velocity of the wave.

14. A wave is moving towards shore with a velocity of 5.0-m/s. If its frequency is 2.5-Hz, what is its wavelength?

15. A jump rope is shaken producing a wave with a wavelength of 0.5-m with the crest of the wave passing a certain point four times per second. What is the velocity of the wave?
16. A wave is moving towards shore with a velocity of 5.0-m/s. If its frequency is 2.5-Hz, what is its wavelength?
17. A jump rope shaken producing a wave with a wavelength of 0.5-m with a crest of the wave passing a certain point four times per second. What is the velocity of the wave?

Wave Types

_____18. waves that require a medium

_____19. particles vibrate perpendicular to direction of energy transfer

_____ 20. 

_____21. Particles vibrate parallel to the direction of energy transfer

_____22. sound waves

_____ 23. light waves

_____24. water waves

_____ 25. 

_____26. 

A) longitudinal waves

B) mechanical waves

C) electromagnetic waves

D) transverse waves

E) Circular