

Niscort Fr. Agnel School  
Self-Learning Worksheet  
Subject- Physics  
Class – IX  
Chapter- Sound

1. A stone is dropped from a 50 m tall building into a pond. When is sound of splash heard at the top? ( $g=10\text{m/s}^2$  , speed of sound in air= 340m/s)?
2. Define one hertz?
3. Audible frequency range of a human ear is 20 hertz to 20000hertz. Express it in terms of time period?
4. Derive the relationship between wavelength, frequency and speed of sound?
5. Define wavelength?
6. Draw a graph showing density and pressure variations with respect to distance for a disturbance produced by sound wave? Mark the position of compression and rarefaction on this curve/graph. Name the regions of maximum and minimum change in pressure respectively?
7. Which characteristic of the sound helps you to identify your friend by his voice while sitting with others in a darkroom?
8. What is a transverse wave?
9. A radar signal is received  $2 \times 10^{-5}$  sec. After it was sent and reflected by an aeroplane. How far is the aeroplane if speed of waves is  $3 \times 10^8$  m/s?
10. A person observe the smoke from /a gun 1.4 sec before he hear the bang. If the gun is 476m away from the person,find the speed of sound?
11. A person standing near the cliff fires the gun and heard the echo after 1.5 sec . If the speed of sound in air is 340m/sec, how far is person from the cliff?
12. A sound wave of frequency 5000 hz travel in air with speed of 350m/sec. Calculatethe wave length.
13. If you hear thunder 7 sec after you see lightening , how far you are from the place where lighting occurred?
14. A bat emits ultrasonic wave of frequency 30 khz..if its speed is 350m/s and bats hear its echo after 0.6 sec after emitting the , find how far is bat from obstacle and wave length of wave?
15. Meera is standing between two hills.she shouted loudly and hears first echo after 0.5 sec and second echo after 1 sec. What is distance between two hills?
16. If 2000 ripples produced in 5 sec in a pond, find time period and frequency of ripples formation.
17. A man standing in a valley between two parallel mountains fires a gun and hears echo at an interval of 2 s and 3.5s. What is a) the distance between two mountains b) the location of the man with respect to the mountain.
18. Calculate the wavelength of a sound whose frequency is 220 hz and speed is 440 in a given medium.
19. A body is vibrating 6000 times is 1 minute. If the velocity of sound in air is 360 m/s, find (i) frequency in hz (ii) wavelength of sound.
20. An echo is heard in 3 sec after the emission of sound. If speed of sound in air is 342 m/s, what is the distance of the reflecting surface from the source?
21. Name two mechanical waves.