

PHYSICS 11 WAVES WORKSHEET 1

Refer to your notes as well as Chapter 14 of the text to answer the following questions.

1. Determine the speed of a periodic wave disturbance that has a frequency of 2.50 Hz and a wavelength of 0.600 m.
2. What is the wavelength of a water wave that has a frequency of 2.50 Hz and a speed of 4.0 m/s?
3. The speed of a transverse wave in a string is 15.0 m/s. If a source produces a disturbance with a wavelength of 1.25 m, what is the frequency of the wave?
4. The period of a sound wave from a piano is 1.18×10^{-3} s. If the speed of the wave in air is 3.4×10^2 m/s, what is its wavelength?
5. If an FM radio station transmits radio signals that have a wavelength of 3.2 m, and radio waves travel at the speed of light, where would you have to adjust your tuner in order to pick up its music? Check your formula sheet to find the speed of light, and note that FM waves are measured in MHz (10^6 Hz)
6. A given crest of a water wave requires 5.2 s to travel between two points on a fishing pier located 19 m apart. It is noted in a series of waves that 20 crests pass the first point in 17 s.
 - a) What is the speed of the waves?
 - b) What is the wave frequency?
 - c) What is the wavelength of the waves?
7. Five pulses are generated every 0.100 s in a tank of water. What is the speed of propagation of the wave if the wavelength of the surface wave is 1.20 cm?
8. You are creating waves in a rope by shaking your hand back and forth. Without changing the distance your hand moves, you begin to shake it faster and faster. What happens to each of the following aspects of the wave:
 - a) amplitude.
 - b) frequency.
 - c) period.
 - d) velocity.
9. Two men are fishing from small boats located 30 m apart. Waves pass through the water, and each man's boat bobs up and down 15 times in 1.0 min. At a time when one boat is on a crest, the other one is in a trough, and there is one crest between the two boats.
 - a) Find the frequency of the waves.
 - b) Determine their wavelength.
 - c) What is the speed of each wave?

1. 1.50 m/s 2. 1.6 m 3. 12.0 Hz 4. 0.40 m 5. at 93.8 MHz 6. a) 3.7 m/s b) 1.2 Hz c) 3.1 m 7. 0.60 m/s
8. a) nothing b) increases c) decreases d) nothing 9. a) 0.25 Hz b) 20 m c) 5.0 m/s