

Worksheet - Wave Properties and Math

1. To make a wavelength of rope shorter, one should shake the rope at a _____ (*higher or lower*) frequency.
2. The primary difference between an electromagnetic wave and a mechanical wave is that a(n) _____ wave can travel through empty space, while the other cannot.
3. Waves carry _____ but does not carry the _____ with it.
4. The energy of a wave depends on its _____.
5. In a _____ wave, the medium vibrates up and down as the wave moves horizontally. In a _____ wave, the medium moves back and forth as the wave moves horizontally.
6. The speed of a wave depends on the _____. It can be calculated by multiplying _____ X _____.
7. Wave _____ (*frequency or velocity*) is the number of vibrations per second of a part of the medium.
8. As the wavelength of a wave increases, the frequency of the wave _____.
9. The frequency of a certain color of light is 4.2×10^{14} Hz. The speed of light is 3.0×10^8 m/s. Find its wavelength.
10. A wave has a period of 12.0 s. The distance between a crest and the adjacent trough is 2.00 m.
 - a. What is the frequency?
 - b. What is the wavelength?
 - c. What is the velocity?