

After the momentum test:

1. Look up the *physics* equation for wavelength and frequency. (Make sure one of your variables is NOT "c." This doesn't work in all wave cases.) Do any of the variables have equations that go with them? Include these when necessary.
2. Define each variable in the equation and give the units for each.
3. Use your physics wave equation to solve the following problems:
 - a. Bob and Larry are working on a period of a pendulum lab. They observe that a pendulum makes exactly 10 complete back and forth cycles of motion in 21.8 seconds. Determine the period of the pendulum. (2.18 s)
 - b. Strong winds can apply a significant enough force to tall skyscrapers to set them into a back-and-forth motion. The amplitudes of these motions are greater at the higher floors and barely observable for the lower floors. It is said that one can even observe the vibrational motion of the Sears Tower in Chicago on a windy day. As the Sears Tower vibrates back and forth, it makes about 8.6 vibrations in 60 seconds. Determine the frequency and the period of vibration of the Sears Tower. (f = 0.14 Hz, T = 7.0 s)
 - c. What is the speed of a wave with a frequency of 10 Hz and a wavelength of 2 m? (20 m/s)
 - d. Extreme waves along ocean waters, sometimes referred to as *freak waves* or *rogue waves*, are a focus of much research and study among scientists. Several merchant ships reports rogue waves which are estimated to be 25 meters high and 26 meters long. Assuming that these waves travel at speeds of 6.5 m/s, determine the frequency and the period of these waves. (f = 0.25 Hz, T = 4.0 s)
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