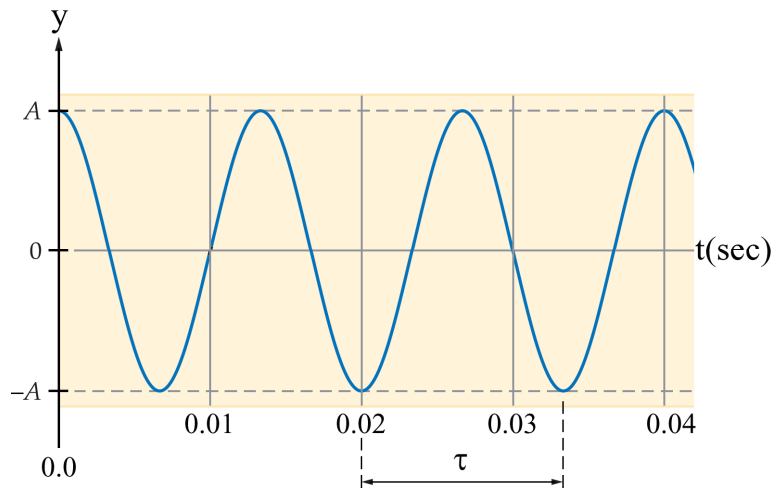


1) The graph at right is for a wave travelling down a stretched wire. During the time interval designated by τ , the wave moves 140 cm.



a) Let us assume that the function in the graph is $y = A \sin(\omega t + \delta)$. What are ω and δ ?

b) What is the speed of the wave? What is its wavelength?

c) If the stretched wire was obtained from a large coil of wire that originally had a mass of 1.1 kg and a length of 500 m, what is the tension on the wire?

2) Two sections of students are trying to out-cheer each other at a BCS bowl game. The first section has 500 students from ICC (Ivy Covered College); the second section has 1500 students from ESU (Enormous State University). A microphone left on the field by MGSN (Money Grabbing Sports Network) is 20 yards from the ICC students and 40 yards from the ESU students. It picks up a sound level of 70 dB when only the ICC students are cheering. If we assume that all students cheer with equal energy, what is the decibel level at the MGSN microphone when both the ICC and ESU students are cheering?

Possibly Useful Definition:
$$\text{dB} = 10 \log \left(\frac{\text{intensity}}{10^{-12} \text{ W/m}^2} \right)$$