Report Sheet

Standing Waves

Data:

Length: _____

Mass: _____

Tension: _____

Harmonic	Wavelength (m)	Time for 20 vibrations (s)	Frequency (Hz)
1			
2			
3			

Mass per unit length

Wave speed: $v = \sqrt{\frac{T}{\mu}}$

Wave speed: $v = f\lambda$

1st harmonic

2nd harmonic

3rd harmonic

average

Questions and Conclusions

1. Was the frequency of the second harmonic approximate twice the frequency of the first harmonic, as expected? Was the frequency of the third harmonic approximately three times the frequency of the first harmonic (eq. 5)?

2. Were the wave speeds for the three trials as calculated by the wave equation (eq. 4) approximately the same?

3. Was the average wave speed based on the wave equation for the three trials close to the wave speed as calculated from equation (2) based on the properties of the medium?

4. Provide some reasonable explanations for inconsistencies in the results for the three harmonics and any difference between the wave speeds calculated by the two methods.