

Primary Activity:

CHECK YOUR WORK

This page is not here for you to cheat, but for you to do a self-evaluation of your work AFTER you've completed this activity. After all, if your measurements are off, so will your calculations! N.B. All measurements are approximate.

These solutions are based on measurements taken on the Giant Slinky exhibit located at the LIGO SEC in Livingston, LA.

Frequency of a longitudinal wave whose wavelength is half the length of the Slinky: **0.55 Hz**

Speed of a longitudinal wave in the Slinky: **2.12 m/s**

Time for a longitudinal pulse to travel the length of the Slinky: **3.65 sec**

Frequency of a transverse wave whose wavelength is the length of the Slinky: **0.35 Hz**

Does the speed, frequency or wavelength of a wave depend on its amplitude? **No**

Expression relating wavelength and frequency to wave speed: **$v = \lambda f$**

Speed of a transverse wave in the Slinky: **2.75 m/s**

Time for a transverse pulse to travel the length of the Slinky: **2.81 sec**

Length of Slinky: **7.73 m**

Standing Waves Extension:

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Try this sample results:
The 6th harmonic was produced using 12 oscillations every 10 seconds. This corresponds to a frequency of 1.2 Hz and compares well with the expected frequency from the table.

Fundamental and harmonic frequencies:	Fundamental:	0.175	Hz
	1st Harmonic:	0.35	Hz
	2nd Harmonic:	0.525	Hz
	3rd Harmonic:	0.70	Hz
	4th Harmonic:	0.875	Hz
	5th Harmonic:	1.05	Hz
	6th Harmonic:	1.225	Hz
