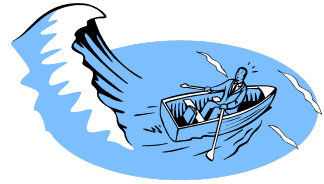


Warm-up - Standing Wave Patterns



1. In the table below, draw the picture of what the standing wave looks like for each harmonic. Label the nodes and antinodes.

☺ What do you notice about the harmonic number and the number of nodes and antinodes?

2. In the table below, the frequency of the first harmonic is given.

a. Predict the frequencies of the 2nd through 4th harmonic by filling in the table.

b. What is the relationship between the frequency of the fundamental and frequencies of the second, third, and fourth?

3. In the table, indicate the number of wavelengths for each harmonic. The fundamental is done for you. Give an explanation for why those numbers are correct.

4. Why are standing waves important?

Properties of Standing Waves

Harmonic	Picture	Frequency	# of Wavelengths
1 st (fundamental)		8 Hz	½ of a wavelength
2 nd			1 wavelength
3 rd			1.5 wavelengths
4 th			2 wavelengths