Name: _____ Date: _____

m_r^β Physics Practice: Harmonics

We have been sinusoidal (pure tone) waves. For a *fundamental wave* with a given frequency f, we are particularly interested in tones with frequencies that are a whole number multiples of f. These are called *harmonics* of the fundamental wave. We will use `http://phet.colorado.edu/en/simulation/fourier`.

1. In the simulation, what do you think A_1, A_2,... represent?

2. Listen to the tone for A_1. Then listen to A_2 with other tones off. Then A_4 with other tones off. How are they related?

3. Consider A_1 by itself.

a. What is the wavelength of A_1?

b. Assuming the speed of sound is 760mph, find the frequency of A_1.

c. What is the frequency of A_{11}?

4. Play the wave game. Take a screenshot of the highest level you win, and post it on your website.