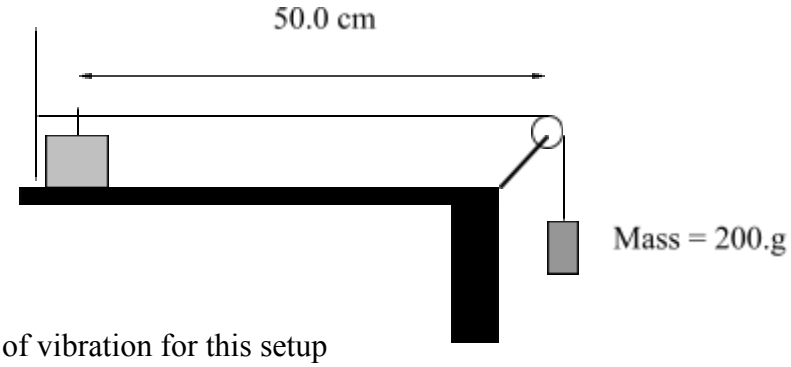
Name _____ **Date** _____ **Period**_____

Waves Unit II, Worksheet 6+

1. A string is fixed between the wave driver and pulley located 50.0 cm apart. A 200. g mass is attached to the end of the string providing the tension. When a wave generator vibrates at 150. Hz the string resonates in the third mode.



a. Sketch the first 5 modes of vibration for this setup
b. Find the wavelength for each of these modes
c. Determine the speed of the wave for each of these modes
d. Determine the resonant frequency for each of these modes

MODE	DIAGRAM	WAVELENGTH	FREQUENCY	WAVE SPEED
1st	50.0 cm			
2nd				
3rd			150. Hz	
4th				
5th				

2. Eric Clapton plucks a C on a guitar string, which causes a fundamental frequency of 261 Hz. The wave travels down the string at 400. m/s.

a. Draw a picture of the standing wave.

b. Determine the wavelength of the wave.

3. Describe some factors that a guitar player can change to vary the frequency (pitch) of the sound produced by a guitar. Describe the change that each one would produce in the pitch of the sound. (Hint: you should be able to identify at least three changes that affect the pitch.)