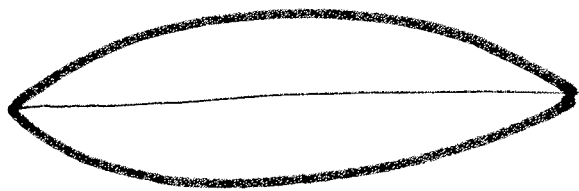


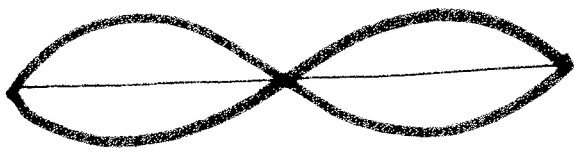
Harmonics

Guitar string fundamental frequency
 ↓
 1st harmonic



ex: 200 Hz

↓ 2nd harmonic (2f)



ex: 400 Hz

↓ 5th harmonic (5f)

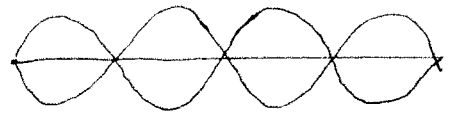


ex: 1000 Hz

Sound sublevel 6

ex #1

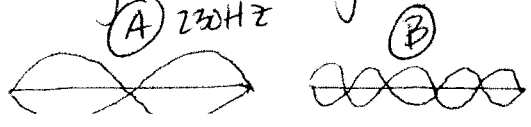
$L = 2\lambda$



This pattern represents the 4th harmonic
 Its wavelength is 50 cm

length of guitar string = 100 cm

ex #2
 $\lambda = 110$ cm



fund $f = 115$ Hz \Rightarrow $\times 5$ 575 Hz
 To produce pattern (B), f must = 575 Hz