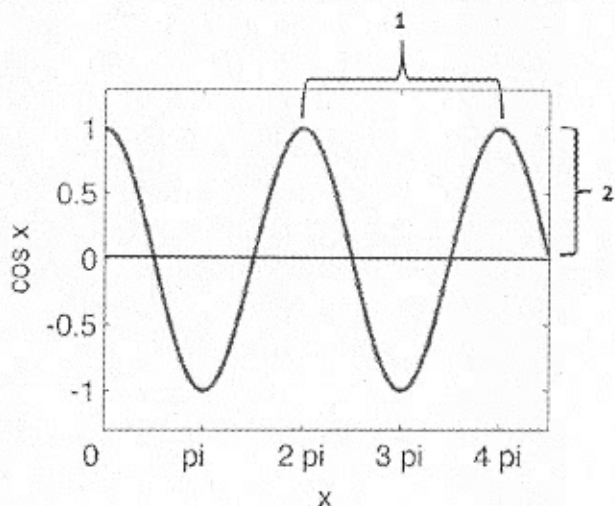Name: _Amy_   Date: _August 12, 2013_

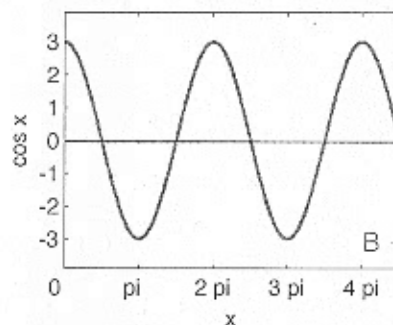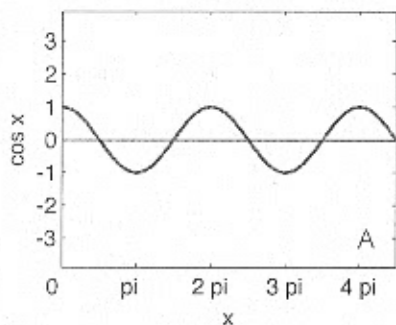The energy of a sound wave increases with its amplitude.

Chose the bracketed span (1 or 2) that represents the amplitude of the sound wave:

_2_

Which of the sound waves below has the larger amplitude (A or B)?   _B_

Which of the sound waves above has more energy (A or B)?   _B_

The volume of sound that you hear is related to the energy of the sound.

Do you expect the volume of the sound to **increase** or **decrease**   _Increase_
as the energy increases?

What can you do to increase the volume (or energy) of the sound waves
produced by your guitar?

Pluck the strings harder.

A guitar string was plucked multiple times by applying different levels of force to the string. The energy and amplitude of each "pluck" was recorded in the chart below.

Plot the data from the chart on the graph.

Energy J/sec	Amplitude nm
1	1
2	4
3	9
4	16

Amplitude (nm) vs Energy (J/sec)
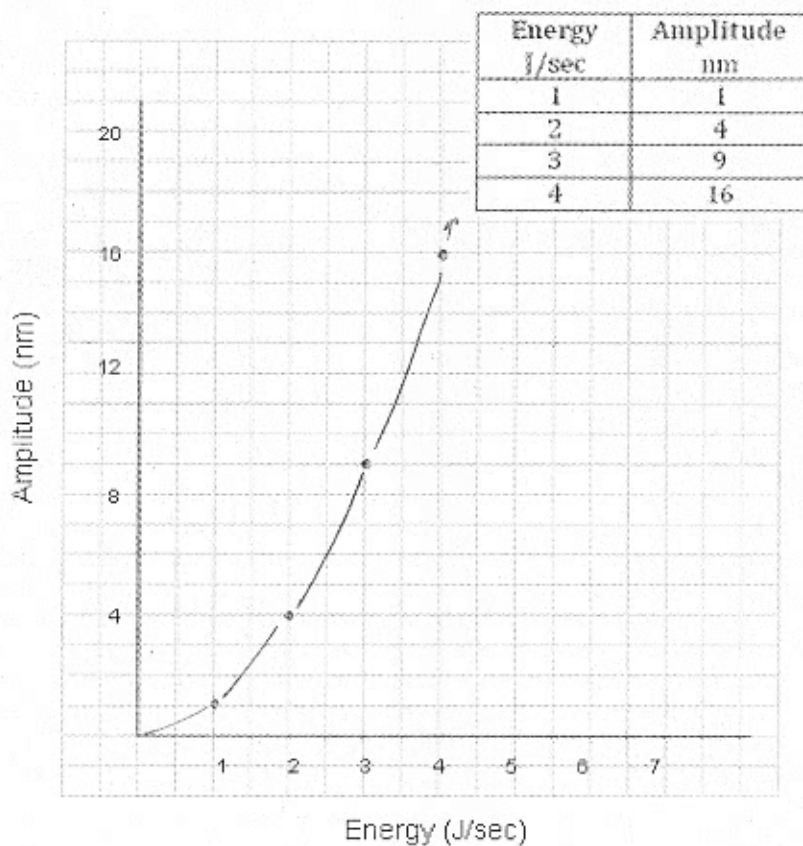
How can you represent the relationship between energy and amplitude with a mathematical statement? (Fill in the blank.)

Energy is proportional to the __Square__ root of amplitude.

Using **E** for energy and **A** for amplitude, write your statement as a mathematical expression.

$$E \propto A^2$$