Battle at Valley Forge Invitational 2012
Sounds of Music

School Name _____ Team Number _____

Match the following terms to their sound-related definitions:

_____ 1. Timbre	A. Lowest frequency for an instrument
_____ 2. Fundamental	B. Unit of frequency
_____ 3. Harmonic	C. Perception of frequency by ear
_____ 4. Hertz	D. Effect of natural vibrations being amplified
_____ 5. Resonance	E. Quality of sound
_____ 6. Pitch	F. Whole number multiples of frequency
_____ 7. Decibel	G. Unit of loudness

8. A2 has a frequency of 110 Hz. What is the frequency of the note a perfect fifth above A2?

9. How many semitones are C4 and the perfect fifth above C4?

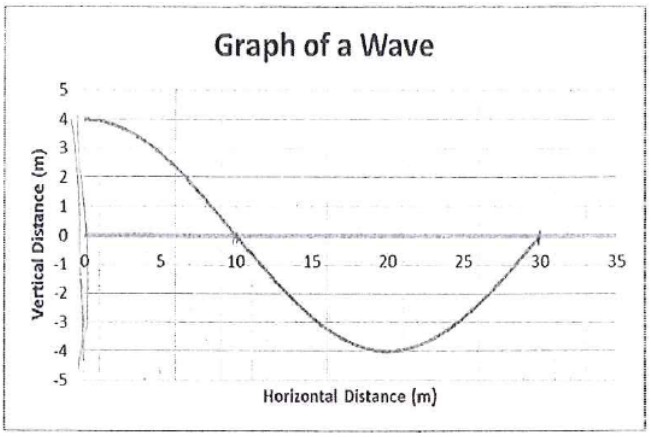
10. How many cents arc between D4 and E4?

11. What is the ratio of the frequencies between F4 and E#4?

12. Below is an open pipe resonator. Draw the fundamental (first harmonic) wave in the tube.

13. One stereo speaker produces a sound intensity level of 90 decibels. If an identical speaker was added, by how many decibels would the sound intensity increase?

14. Looking at the following graph to answer A-E:



A. What type of wave is this?

B. What is the wave's wavelength?

C. What is the wave's amplitude?

D. If the wave was moving at 120m/sec, what would be the wave's frequency?

E. What is the period of the wave?

15. Below is a closed pipe resonator (closed end on the right side). Draw the fundamental (first harmonic) wave in this tube.

16. What happens to the speed of sound in air as the temperature decreases?