Beat Frequency

Homework Bonus Question

Go to http://en.wikipedia.org/wiki/Beat_frequency

B1) (+ 6 points) Explain what the equation means for the sounds, which identity was used, how you find the envelope and beat frequency, how the pitch is affected (or not).

B2) (+10 points) The graph below shows the beats from two sounds of frequency f1 and f2. Using the graph and the window, find the amplitude and frequencies of the interfering waves.

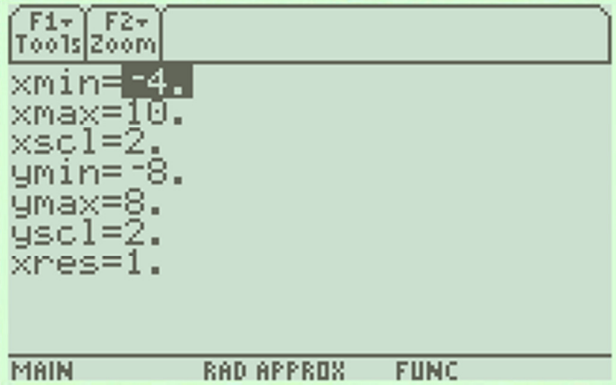
A =

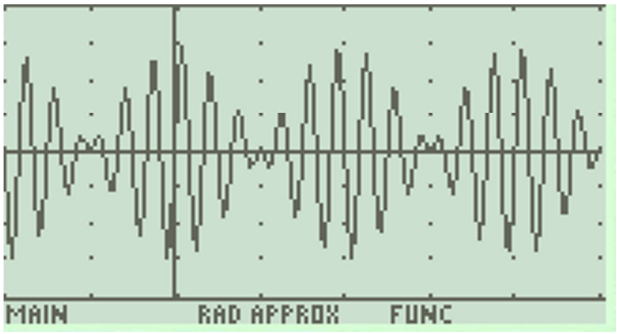
f_1 =

f_2 =

Beat frequency =

Show your work.





B3) (+6 points) A note C has frequency 523 Hz. A piano tuner tries to get the C note when tuning the piano, but she hears 2 beats/second between the piano string and her reference oscillator.

a) What are the possible frequencies of the piano string?

b) If she hears 3 beats per second, what are the possible frequencies of the piano string?

c) Is it better to have more beats per second or fewer beats per second? Why?