SANTA CLARA UNIVERSITY
Electrical and Computer Engineering Department

Real-Time Embedded Systems - ECEN 121
Lab 9
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USB Music Player

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Prelab:

Review this entire lab.

Review the code in main.c for the first part of the lab (Lab9p1.zip from the Lab Handouts directory – in the Src subdirectory.

How many cycles of the sine wave will be placed into the buffer audiobuffer[] ? Show the math.
We have 16,000 samples in the buffer, and know that 40 samples makes up one wave cycle. Therefore we have 16,000 samples / 40 samples per cycle. After doing this division and canceling units, we get 400 total sin wave cycles.

Using the schematic below, the output of port PA5 will range from 0-3V and in practice will be an AC signal with a peak-to-peak voltage of 3V. How can you calculate the peak-to-peak voltage at Tip when powered, stereo speakers are plugged into the audio adapter?
Just do Voltage division.
0 to 3V * (10k/(5.1k+10k)= 0 to 1.987V or ~2V. Peak to peak is 1.987V or ~2V.