

**Homework 4: Consonance & Dissonance**  
**20 Points: Due at the beginning of class, Thursday, 6 December 2001**

There are two parts to this homework assignment. Each part counts 10 points. Late homework will receive a grade of zero.

**Part 1:**

The ten tones given in the table below have the same intensity (70 dB). Using the principles derived from the Plomp and Levelt experiment (Plomp & Levelt, 1965) which of the five tone pairs would have the maximum amount of dissonance (minimum amount of consonance)? Why? Hint: critical band estimates can be based on 15% of the mean frequency of the two tones.

Pair	Tone 1	Tone 2
1	498 Hz	502 Hz
2	490 Hz	510 Hz
3	481 Hz	519 Hz
4	462 Hz	538 Hz
5	425 Hz	575 Hz

**Part 2:**

Which of the tone pairs will sound the loudest? Why?

Plomp, R., & Levelt, W. J. M. (1965). Tonal consonance and critical bandwidth. *Journal of the Acoustical Society of America*, 68, 548-560.