

COSC 4P98 Lecture notes: **Piano Frequencies**

January 22, 2014

B. Ross

- Modern pianos have 88 keys, which play tones in a 12-tone equal temperament. One octave represents double the frequency of a note. Therefore, there are 12 keys between octaves.
- Each key plays a frequency $f' = f \times 2^{\frac{1}{12}}$ higher than the key f before it.
- Middle C on the keyboard has a frequency of approximately 261.6 Hz.
- C# (black key to right of middle C) has a frequency $f \dots$:

- $f = 261.6 \times 2^{\frac{1}{12}} = 277.2$

- More generally, finding the frequency f' of the k -th key above a note with frequency f is:

- $f' = f \times 2^{\frac{k}{12}}$

- Finding the frequency f' of the k -th key before a note of frequency f is:

- $f' = \frac{f}{2^{\frac{k}{12}}}$

References:

http://en.wikipedia.org/wiki/Piano_key_frequencies