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 \( f' \) as:

\[
\begin{align*}
f & = 261.6 \times 2^{\frac{1}{12}} = 277.2
\end{align*}
\]

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

\[
\begin{align*}
f' & = f \times 2^{\frac{k}{12}}
\end{align*}
\]

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

\[
\begin{align*}
f' & = \frac{f}{2^{\frac{k}{12}}}
\end{align*}
\]

References:

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