

Concept Question 9-15: Why does the circle of fifths make it simple to use multirate filtering to generate all notes from a single note?

Using the circle of fifths, the frequencies of all notes within an octave are related to each other (not in order) by factors of $5/3$ (or $3/5$). So multirate signal processing with a factor of $5/3$ or $3/5$, and 2 (to reduce to a single octave) can generate all notes from a single note.