Инициализация массива частот

```
class var noteFrequencies: [Double] {
        // f[i] = f0 * 2^(i/12)
        // f0 is note A frequency (base note)
        var noteFrequenciesArray = [Double]()

        let firstNoteFromBase  = -57
        let lastNoteFromBase   = 62
        let notesInOctave      = 12.0

        for i in firstNoteFromBase ... lastNoteFromBase {
            noteFrequenciesArray.append( baseFrequency * pow(2, Double(i) / notesInOctave) )
        }

        return noteFrequenciesArray
    }
```

Поиск ноты

```
private func updateNoteNumber() {
        var nextElement = Tuner.maxNoteNumber
        var prevElement = Tuner.minNoteNumber
        var currElement = nextElement / 2

        if frequency < Tuner.noteFrequencies[Tuner.minNoteNumber] {
            noteNumber = Tuner.minNoteNumber
        }

        if frequency > Tuner.noteFrequencies[nextElement] {
            noteNumber = nextElement
        }

    while ( nextElement - prevElement > 1 ) {
        if frequency > Tuner.noteFrequencies[currElement] {
            prevElement = currElement
        } else {
            nextElement = currElement
        }

        currElement = prevElement + (nextElement - prevElement) / 2
    }

    let prevElementInterval = -Tuner.noteFrequencies[prevElement] + frequency
    let nextElementInterval =  Tuner.noteFrequencies[nextElement] - frequency

    noteNumber = prevElementInterval > nextElementInterval ? nextElement : prevElement
}
```