

Multiplication by 2

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Pick any rational number, and iteratively multiply it by 2. The fractional parts of terms in the resulting sequence will eventually start repeating, giving a periodic sequence.

This talk will focus on problems such as: for all periodic sequences with a given arithmetic mean, which one has the largest geometric mean? This leads to a remarkable sub-class of periodic sequences, and a class of inequalities for which they are "optimal".

There are connections with various areas of mathematics: word combinatorics, majorization theory, comparison of experiments...