

William Paulsen
Calkin-Wilf Sequences for Irrational Numbers,
Fibonacci Quart. **61** (2023), no. 1, 51–59.

Abstract

We generalize the Calkin-Wilf sequence by applying its recursion formula to an irrational initial value. We prove that if we start with quadratic surd, we will eventually reach an integer plus our starting value, although we may have to consider the predecessor sequence. We also find conditions for an integer minus the starting value to appear. In particular, if we start with \sqrt{n} , then $m - \sqrt{n}$ appears for some m if and only if there is a solution to the negative Pell equation.