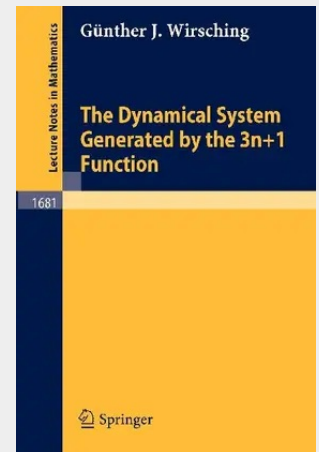


The Dynamical System Generated by the $3n+1$ Function

The $3n+1$ function T is defined by $T(n)=n/2$ for n even, and $T(n)=(3n+1)/2$ for n odd. The famous $3n+1$ conjecture, which remains open, states that, for any starting number $n>0$, iterated application of T to n eventually produces 1. After a survey of theorems concerning the $3n+1$ problem, the main focus of the book are $3n+1$ predecessor sets. These are analyzed using, e.g., elementary number theory, combinatorics, asymptotic analysis, and abstract measure theory. The book is written for any mathematician interested in the $3n+1$ problem, and in the wealth of mathematical ideas employed to attack it.

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