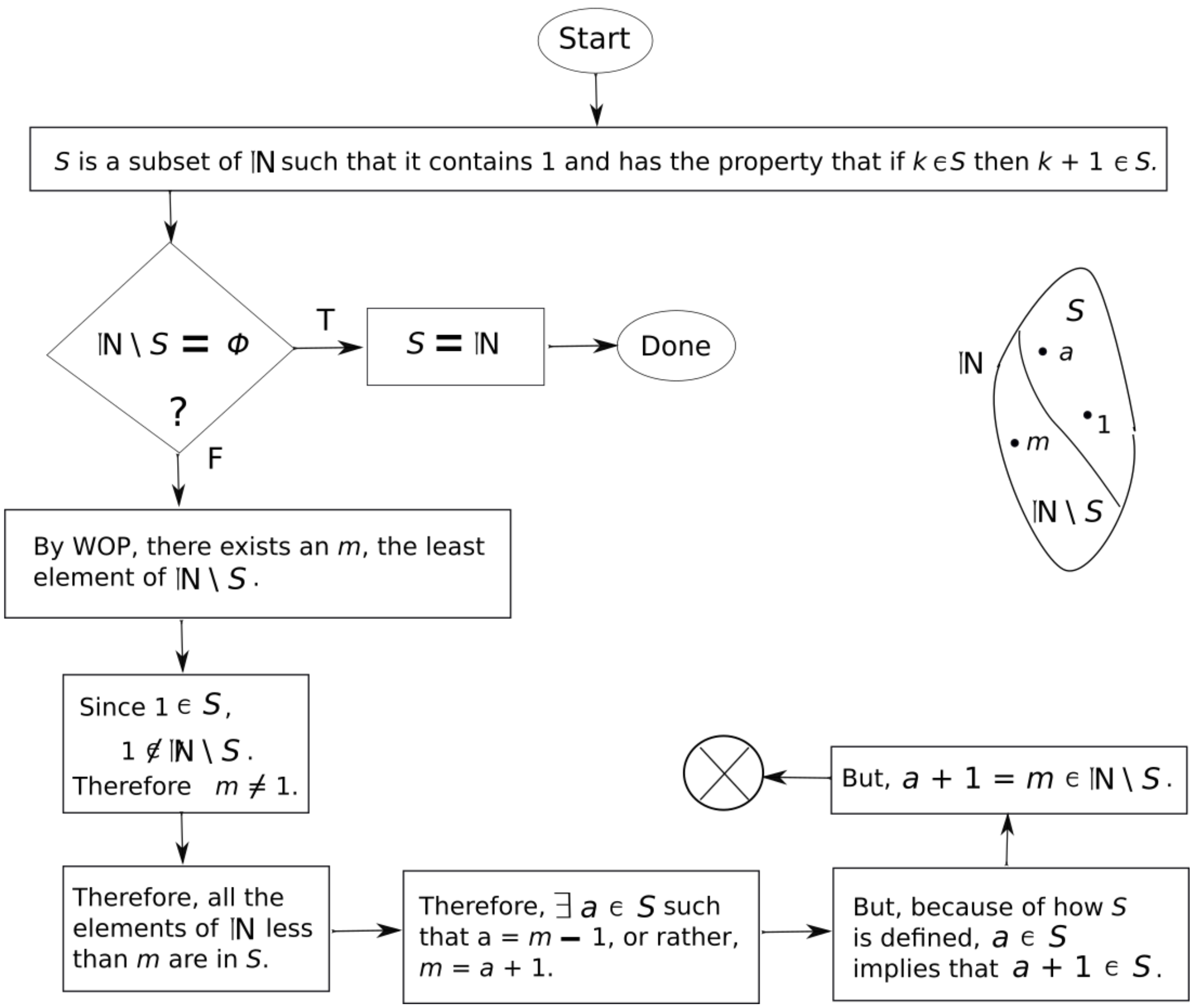
Theorem: The Well-Ordering Principle (WOP) implies Mathematical Induction (MI), and vice versa.
The proof of this will be in two parts, this being Part 1: WOP imples MI.

The Well-Ordering Principle (WOP) can be stated simply: Every subset of the positive integers has a least element, which is common sense.

Mathematical Induction (MI) is a tad trickier: Every subset of the positive integers S that contains 1 and has the property that if $k \in S$ then $k + 1 \in S$, then S is all of the positive integers, or $\mathbb{N}$.



Theorem: The Well-Ordering Principle (WOP) implies Mathematical Induction (MI), and vice versa. The proof of this will be in two parts, this being Part 2: MI implies WOP.

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Let S be a nonempty subset of $\mathbb{N}$, then S has a least element.